

City of Miami Beach 10-year Water Supply Facilities Work Plan

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FINAL DRAFT

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LIST OF ACRONYMS

Abbreviation	Definition
AWWA	American Water Works Association
City	City of Miami Beach
DEO	Department of Economic Opportunity
DERM	Miami-Dade County Department of Environmental Resources Management
EPA	U.S. Environmental Protection Agency
FY	Fiscal Year
GPCED	Gallons Per Capita Per Day
gpm	gallon(s) per minute
ICE	Intergovernmental Coordination Element
INF	Infrastructure
LDR	Land Development Regulations
LEC	Lower East Coast
MDWASD	Miami-Dade Water and Sewer Department
MGD	Million Gallons Per Day
No.	Number
Qty	Quantity
RER	Regulatory and Economic Resources
ROW	Right-of-Way
rpm	Revolutions Per Minute
RSE	Resiliency and Sustainability Element
RWSP	Regional Water Supply Plan
SCADA	Supervisory Control and Data Acquisition
SEOC	State Emergency Operations Center
SFWMD	South Florida Water Management District
WTP	Water Treatment Plant

1. INTRODUCTION

The City of Miami Beach (City) is presenting a 10-year Water Supply Facilities Work Plan that will guide the City's efforts to thrive and preserve sustainable sources of water for its overall Water Service Area in coordination with the 2018 Lower East Coast Water Supply Plan Update (LEC). The City is a Miami-Dade County Water and Sewer Department (MDWASD) wholesale water customer. The City owns and operates the water distribution within the City's service areas. In accordance with state and local codes, Miami-Dade County issues the City's Annual Operating Permit.

The City of Miami Beach 2010 10-Year Water Supply Facilities Work Plan was prepared and adopted in 2010 according to the South Florida Water Management District (SFWMD). An update to the 2007 Lower East Coast Regional Water Supply Plan was approved in 2013. The latest update to the LEC Plan was approved in 2018. The Water Supply Plan is required to be based on a 10-year planning horizon and to be updated every five years or within 18 months of a revision to the LEC Plan. On November 8, 2018 the SFWMD Governing Board approved the Lower East Coast Water Supply Plan Update to ensure there will be enough drinking water for more than 6 million residents in South Florida's Lower East Coast Region. Therefore, local governments are required to revise their Comprehensive Plan to include their updated Water Supply Facilities Work Plan within 18 months after the date the Regional Water Supply Plan Update was adopted. The City of Miami Beach 2020 10-Year Water Supply Work Plan is not only intended to meet legislative requirements but also to identify and address the needs of water supply facilities to serve existing and new development within our local jurisdiction.

The City of Miami Beach 10-Year Water Supply Facilities Work Plan is divided into six sections:

- Section 1 — Introduction
- Section 2 — Background Information
- Section 3 — Data and Analysis
- Section 4 — Intergovernmental Coordination
- Section 5 — Capital Improvement Elements
- Section 6 — Goals, Objectives and Policies

1.1 STATUTORY HISTORY

The State of Florida Legislature enacted bills in the beginning of 2002 and continuing in 2004, 2005, 2011, 2012, 2015 and 2016 that required all the local governments to prepare a 10-Year Water Supply Work Plan. Florida Statutes Section 373.709 and Section 163.3177(6)(c)3 require the water supply work plan be updated within 18 months after a water management district's governing board approves an updated regional water supply plan. The Regional Water Supply Plan prepared by the water management districts, along with the subsequent Comprehensive Plan prepared by the local governments, is intended to improve coordination between local land use planning efforts and regional water planning.

1.2 STATUTORY REQUIREMENTS

The City of Miami Beach has evaluated the following statutory provisions to update this 10-year Water Supply Facilities Work Plan:

1. Coordinate appropriate aspects of the Comprehensive Plan with the applicable RWSP (2018 Lower East Coast Water Supply Plan Update) [Section 163.3177(4)(a), F.S.].
2. Ensure the Future Land Use Plan is based on availability of adequate water supplies and public facilities and services [Section 163.3177(6)(a), F.S.]. Data and analyses demonstrating that adequate water supplies and associated public facilities will be available to meet projected growth demands must accompany all proposed Future Land Use Plan and Plan amendments submitted for review.
3. In consultation with the water supplier, ensure adequate water supplies and potable water facilities are available to serve new development no later than the issuance by the local government of a certificate of occupancy or its functional equivalent [Section 163.3180(2), F.S.].
4. For local governments subject to an RWSP, revise the General Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge element (the “Infrastructure element”) through a Comprehensive Plan amendment to:
 - A. Identify and incorporate the alternative water supply project(s) selected by the local government from projects identified in the applicable RWSP, or alternative project(s) proposed by the local government under Section 373.709(8)(b), F.S. [Section 163.3177(6)(c), F.S.].
 - B. Identify the traditional and alternative water supply projects and the conservation and reuse programs necessary to meet water needs identified in the applicable RWSP [Section 163.3177(6)(c)3., F.S.]; and
 - C. Update the Work Plan for at least a 10-year planning period for constructing the public, private, and regional water supply facilities identified in the element as necessary to serve existing and new development [Sections 163.3177(6)(c)3. and (5), F.S.].
5. Revise the Five-Year Schedule of Capital Improvements to include water supply, reuse, and conservation projects and programs to be implemented during the 5-year period [Section 163.3177(3)(a)4., F.S.].
6. To the extent necessary to maintain internal consistency after making changes described in Paragraph 1 through 5 above, revise the Conservation element to assess projected water needs and sources for at least a 10-year planning period, considering the applicable RWSP and water use permit(s) [Section 163.3177(6)(d), F.S.]. The comprehensive plan must address the water supply sources necessary to meet the existing and projected

water use demand for the established planning period, considering the applicable RWSP [Section 163.3167(9), F.S.].

7. To the extent necessary to maintain internal consistency after making changes described in Paragraphs 1 through 5 above, revise the Intergovernmental Coordination element to ensure consistency between the Comprehensive Plan and the applicable RWSP [Section 163.3177(6)(h)1., F.S.].
8. Local governments are required to comprehensively evaluate and update the Comprehensive Plan to reflect changes in local conditions every seven years. The evaluation could address the local government's need to update their Work Plan, including the development of alternative water supplies, and determine whether the identified alternative water supply projects, traditional water supply projects, and conservation and reuse programs are meeting local water use demands [Section 163.3191(3), F.S.].
9. Local governments may be exempt from updating their Work Plan if they meet certain criteria. A local government that does not own, operate, or maintain its own water supply facilities and is served by a public water supply entity with a permitted allocation of 300 million gallons per day or greater is not required to amend its Comprehensive Plan when an RWSP is updated if the local government uses less than 1 percent of the public water supply entity's total permitted allocation. However, the local government must cooperate with the public water supply entity that provides service within its jurisdiction and must keep the Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge element up to date, pursuant to Section 163.3191, F.S. A local government should contact the Florida Department of Economic Opportunity (DEO) to verify its qualifications for the exemption [Section 163.3177(6)(c)4., F.S.].
10. Local governments with a Sector Plan adopted in accordance with Section 163.3245, F.S., should incorporate information from the adopted Sector Plan, Master Plan, and Detailed Specific Area Plan into the Work Plan. The focus should be on water needs, water supply and resource development, conservation measures, and intergovernmental coordination activities with the SFWMD and water supply development projects needed to address projected development in the Sector Plan area [Section 163.3245, F.S.]

2. BACKGROUND INFORMATION

2.1 OVERVIEW

The City of Miami Beach is located in eastern Miami-Dade County. It was incorporated on March 26, 1915. The boundaries of the City encompass an area of approximately 7.5 square miles between the Atlantic Ocean and Biscayne Bay that separates the Beach from the mainland city of Miami. The South Beach neighborhood of Miami Beach attracts many visitors around the world for its historic Art Deco architecture, restaurants, clubs and beaches. Miami Beach had an estimated residential population of approximately 97,000 in 2020, according to the Water System Master Plan (Hazen 2019). The City also accommodates a transient population comprised of hotel guests and commuting employees, estimated at approximately 62,000 in 2020 (Hazen 2019). Consequently, the City's water distribution system is estimated to serve a total equivalent population of approximately 159,000 in 2020. Section 3.5 of this document describes in detail how this equivalent population is calculated.

The City of Miami Beach is governed by a commission-managerial system. It is governed by an elected mayor and six-member City Commission. The Mayor is elected every two years. The commissioners are elected to serve four years with a term limit of two terms. The commission appoints the City Manager, who oversees the City Administration, and the City Attorney who oversees the Office of the City Attorney.

As the City is facing an increase in flooding due to sea level rise, the Miami Beach Land Use Board incorporates criteria to address and plan for the effects of sea level rise and climate change. The City of Miami Beach encourages the economic and environmental health of the community through sustainable and environmentally friendly design and construction which reduces demand on natural resources while improving the overall quality of life. The City of Miami Beach is committed to resilient and strategic planning to mitigate impacts of climate change. One of the strategies includes evaluation and assessment of vulnerable areas of the City to develop guidelines and recommendations to mitigate potential impacts of sea level rise in our neighborhoods. Resilient land use strives to transform the way buildings and communities are designed, built, and operated, in order to create buildings and communities that are environmentally and socially responsible, healthy, and prosperous. Land use developments can affect some or all types of properties.

2.2 RELEVANT REGIONAL ISSUES

As the state agency responsible for water supply in the Lower East Coast planning area, the SFWMD plays a pivotal role in resource protection, and does so by balancing and improving water quality, flood control, natural systems and water supply. The SFWMD has several ongoing key initiatives in an effort to execute this goal of resource protection, such as the cleanup and restoration of the Everglades, and enforcing limitations on increased allocations dependent on the region's surficial groundwater system, the Biscayne Aquifer. As part of the SFWMD's water

use permit program, the Regional Water Availability Rule was adopted by the Governing Board on February 15, 2007. This Rule promoted reduced reliance on the regional system for future water supply needs, by mandating the development of alternative water supplies, and increasing conservation and reuse. Although the City is fully dependent on the MDWASD for their potable water source as well as its wastewater treatment & disposal and therefore has limited ability to feasibly implement alternative water supplies and reuse, the City is aligned with these SFWMD initiatives through its implementation of the water conservation program, further described in Section 3.8. As described in this Work Plan, the City is committed to minimizing, to the extent possible, the impacts of its current and future water supply needs.

3. DATA AND ANALYSIS

This section of the Work Plan describes the information that local governments need to provide to state planning and regulatory agencies as part of their proposed comprehensive plan amendments.

3.1 CURRENT AND FUTURE AREAS SERVED

The current area served by Miami Beach is presented in Figure 1, located in Appendix A of this report. As of now, the City of Miami Beach has no intention to extend its service area.

The current public water supply utility service areas in Miami-Dade County are presented in Figure 2, also located in Appendix A of this report.

3.2 CITY INFRASTRUCTURE AND INTERCONNECTS

The City of Miami Beach water distribution system is supplied and metered by MDWASD through the four water main connections listed below—as illustrated in Figure 3: Water Supply Interconnects with MDWASD, in Appendix A.

- 20-inch diameter water main on Watson Island (MacArthur Causeway)
- 30-inch diameter water main on San Marco Island (Venetian Causeway)
- 36-inch diameter water main on Julia Tuttle Causeway (Norwood)
- 36-inch diameter water main on Normandy Isle (79th Street Causeway)

The City of Miami Beach owns and operates booster pump stations that boost the water pressure within the City and pump potable water from above ground storage tanks to the rest of the City.

MDWASD is in the process of making modifications to a fifth interconnect located at the north border of the City (next to the border with the Town of Surfside), to be able to supply water to the City in case of emergency. This emergency interconnect is a 24-inch diameter water main. The water flow through this interconnect will be measured by MDWASD via a new meter that is being installed at Byron Avenue.

3.3 AREAS SERVED BY DOMESTIC SELF SUPPLY SYSTEMS

The City of Miami Beach does not have any potable water wells because the groundwater has very high chloride concentration, and therefore it's not apt for public consumption nor for irrigation.

3.4 POTABLE WATER LEVEL OF SERVICE STANDARD

Based on the City’s Water System Master Plan (Hazen 2019), the average of the equivalent water demand per capita is 156 (gpcd). This average was calculated based on historical water demand from the year 2015 to 2018 (Table 1), considering the estimated total residential and transient population. Section 3.5 of this document describes in detail how this equivalent population served is calculated.

Table 1: Historical Water Demand – Annual Average Daily Flow

	Population Equivalents Served	MDWASD Billed Water (mgd)	Per Capita Equivalent Water Demand (gpcd)
2015	145,627	23.2	159
2016	148,031	23.2	157
2017	150,480	23.6	157
2018	153,674	23.0	150
Average	-	23.2	156

Source: CMB 2019 Water Master Plan

Per the Comprehensive Plan, the following City-wide Level of Service Standards are typically used as the basis for determining the availability of facility capacity for non-residential uses; the systems shall be able to provide/accommodate at least the minimums specified:

Hotel: 75 gallons per day per room
Office: 0.084 gallons per day per square foot
Retail: 0.18 gallons per day per square foot
Industrial: 0.084 gallons per day per square foot
Restaurant: 65 gallons per day per seat
School: 12 gallons per day per student

3.5 POPULATION PROJECTIONS

The City of Miami Beach current and future population were projected as part of the 2019 Water Master Plan. The total equivalent population served by the City’s water system is comprised of three categories: residents, employees and hotel guests. The employee population category corresponds to the floating population that commutes to the City but are not actual residents. Residents are non-transient population, while employees and hotel guests makeup the transient population. Table 1 presents the population projections through the year 2045.

To estimate the water demand for the City, the number of “Population Equivalents Served” was calculated by combining the numbers forecasted for residents, employees, and hotel guests. In this calculation, it was assumed that a hotel guest has a similar water usage as a resident; therefore, one hotel guest is equivalent to one resident. However, the water consumption

corresponding to an employee was assumed to be half of that of a resident. Therefore, the total number of “Population Equivalents Served” is equal to the number of residents plus the number of hotel guests plus half of the number of employees.

Table 2: City Populations Projections

	2020	2025	2030	2035	2040	2045
Residents	97,192	101,905	106,618	111,332	116,045	120,758
Employees	71,161	76,256	81,352	86,447	91,542	96,637
Hotel Guests	26,113	31,727	34,180	36,822	39,667	42,732
Total Population	196,486	211,913	224,180	236,636	249,294	262,172
Population Equivalents	158,885	171,760	181,474	191,377	201,483	211,809

Source: CMB 2019 Water Master Plan

Table 3 below lists the City’s population projection based on 2015 TAZ Population Projections Update included in the County’s 2020 draft Water Supply Facilities Work Plan anticipated to be adopted in 2021. The County’s populations projections in the 2020 draft Water Supply Plan do not include transient populations.

Table 3: Population Projections

	2015	2016	2020	2025	2030	2035	2040
Total	92,472	93,490	97,563	102,654	107,745	112,836	117,927

Source: 2015 TAZ Population Projections Update, County draft 2020 WSP

The 2019 Water Master Plan population projections and the 2015 TAZ population projections reported by MDWASD are different because the 2019 Water Master Plan projections used 2017 TAZ Update and also considered the transient population. When comparing the residential population only, the 2019 Master Plan and the MDWASD projections were relatively similar, with estimated population of 97,192 and 97,563 for 2020, and 116,045 and 117,927 for 2040, respectively. Therefore, for 2040, the projected MDWASD population was only about 1.6% greater than the 2019 Water Master Plan projection.

3.6 WATER DEMAND PROJECTION

Water demand projections were developed using the projected population equivalents data presented in Table 4 and the average historical per capita equivalent water consumption of 156 gpcd, presented in Table 1. For water demand forecasting, the year 2018 was used as the base

year for determining changes in population for each time step. The baseline demand for 2018 was developed by using the actual water consumption metered by the City per sewer basin in 2018 and applying a correction factor across each basin to account for (a) non-metered flows and distribution system losses and (b) corresponding water consumption assuming the historical average per capita equivalent consumption of 156 gpcd. The water demand for each projection year was then estimated using a per capita equivalent water consumption of 156 gpcd for the corresponding population equivalent for each year.

Table 4: City Water Demand Projections

	2020	2025	2030	2035	2040	2045
Projected Population – Total residential + transient	196,486	211,913	224,180	236,636	249,294	262,172
Populations Equivalents Served	158,885	171,760	181,474	191,377	201,483	211,809
Water Demand (MGD) - Total (Annual Average Demand)	24.7	26.7	28.2	29.8	31.4	33.0

Source: CMB 2019 Water Master Plan

The data presented below in Table 5 was obtained from the 2015 TAZ Population Projections Update, included in Appendix C of the County's 2020 Draft Water Supply Facilities Work Plan, and is anticipated to be adopted in 2021. The City's water use per capita was determined based on the residential population only, thus resulting in a significantly greater value of 241.6 gpcd.

Table 5: MDWASD Current Water Projections

	ACTUAL	PROJECTED				
	2015	2020	2025	2030	2035	2040
Miami Beach Population	92,472	97,563	102,654	107,745	112,836	117,927
Miami Beach Gallons per Capita per Day (GPCD)	241.6	241.6	241.6	241.6	241.6	241.6
Miami Beach Water Demand Projections, Million Gallons per Day (MGD)	22.34	23.57	24.80	26.03	27.26	28.49

Source: 2015 TAZ Population Projections Update, Appendix C of County draft 2020 WSP

Table 6 below shows the difference between water demand projections from MDWASD 2015 TAZ population projections update and City's latest water demand projections from the 2019 Water Master Plan. The latest City demand projections are generally greater than MDWASD's, with 24.7 mgd and 23.6 mgd in 2020, and 31.4 mgd and 28.5 mgd in 2040, respectively. The difference in water demands projections can be explained by the City's analysis considering the transient

population to be a greater contributor to demands, having a greater rate of demand increase than that due to the residential population over the planning period. As stated in the previous section, the County did not consider transient populations in their population projections and water demand projections. Alternatively, the County's projections used a systemwide residential per capita approach, yielding an approximate 5% lower total estimated water demand for 2020 and 10% lower total estimated water demand for 2040. The City's latest projections will be supplied to MDWASD so that the water supply planning for this service area is coordinated accordingly.

Table 6: MDWASD vs. City Water Demand Flow Projections

	2020	2025	2030	2035	2040
MDWASD Water Demand Projections	23.6	24.8	26.0	27.3	28.5
City Water Demand Projections	24.7	26.7	28.2	29.8	31.4
WASD vs 2019 Master Plan Projections (MGD)	1.1	1.9	2.2	2.5	2.9

Source: CMB 2019 Water Master Plan, Appendix C of County draft 2020 WSP

3.7 WATER SUPPLY BY MIAMI-DADE COUNTY WATER AND SEWER DEPARTMENT

The County is currently working on updating its 2020 draft Water Supply Plan. Additionally, Miami-Dade County is also currently updating its Water Use Permit 13-00017-W to include 2040 planning horizon. The City has shared its 2020 Water Supply Plan draft with the County that details the City's water demand projections per the City's 2019 Master Plan. The requirement for a 20-year Water Supply Agreement is imposed by the South Florida Water Management District (SFWMD) as a condition of the water permit granted to Miami-Dade County to act as a water supplier.

The City and the Miami-Dade County entered into a 20-year wholesale water service agreement in July of 2008. No new water sources or suppliers are anticipated to be needed at the City within the planning period associated with this Water Supply Plan. At the time that the City and the County renew the 20-year water agreement in 2028, further coordination will take place to make sure that MDWASD continues to meet the City's projected water demands, per the City's 2019 Master Plan or latest available planning study.

The referenced information is the best available data, as required by Section 163.3177(1)(f), F.S. The Draft 2020 Miami-Dade County Work Plan Update includes data and analysis that demonstrates that there is sufficient water available to serve the projected water needs of the City and the County through the year 2035. The information has been incorporated by reference into the City's Work Plan.

3.8 CONSERVATION AND REUSE EFFORTS

The City of Miami Beach coordinates the planning of potable water and sanitary sewer facilities, services and level-of-service standards with the MDWASD, DERM and the SFWMD. The City of Miami Beach is updating its Work Plan considering the SFWMD updates to the Lower East Coast Water Supply Plan. Consequently, water conservation is a key component to the City's Work Plan. The City of Miami Beach is very involved in multiple initiatives to promote conservation, in coordination with SFWMD and MDWASD's efforts.

The City, through the Building Department, will continue to enforce the requirement to use high efficiency fixture water saving devices for substantial rehabilitation and new construction projects, as specified in the standard plumbing code. All future development within the City will be required to comply with water use efficiency standards for indoor water use in accordance with Section 8-31, 32-83.1, 32-84 and 8A-381 of the Code of Miami-Dade County. In addition, all future development will be required to comply with the landscape standards in Section 18-A and 18-B of the current Miami-Dade County Code and future updates.

The City of Miami Beach educates the development community on the benefits of sub-metering for multi-family residential retrofit projects, which are encouraged to include separate water meters and monthly records kept of all major water-using functions—such as cooling towers and individual units. The City will start a pilot incentive program as a means of encouraging developers that retrofit units to install separate meters and high efficiency appliances. The City will require new multi-family residential developments to install separate water meters for each unit. Additionally, the City is currently working on a CIP funded City-Wide water meter replacement project, planned to be completed in 2022. The new water meter technology will enable the City to have more accurate readings of water being consumed. The new water meters will also provide a customer portal in which the customer will be able to track daily consumption, spikes in usage and possible leaks. This new tool will help customers (and City) track consumption and help conserve potable water.

The City signed an interlocal agreement with Miami-Dade County on December 2014 for the provision of wholesale sewage disposal by MDWASD for a period of 20 years. All sewage flows produced by the City are sent to WASD's Central District Wastewater Treatment Plant. Therefore, the City does not have the means to feasibly produce reclaimed water nor to implement a reuse program/policies. MDWASD is responsible for accepting and treating sewer flows as well as having a reuse program.

3.8.1 COUNTY-WIDE EFFORTS

The City of Miami Beach is collaborating with the SFWMD and Miami-Dade County in meeting their common water conservation goals.

Miami-Dade County's Water Conservation Program looks to promote a water-saving ethic among residents, visitors, and businesses. The City of Miami Beach educates its constituents about

incentives offered by Miami-Dade County that help reduce water use. The City of Miami Beach cooperates with MDWASD to continue to implement the City's comprehensive water conservation program to ensure that a sufficient, economical supply of fresh water is available to meet current and future demand for potable water. MDWASD, in conjunction with the Planning Department and other applicable County departments and agencies, published a Water Use Efficiency Standards Manual, effective January 2009, to achieve maximum water savings in new residential and commercial developments in the incorporated and unincorporated areas of Miami-Dade County.

The Miami-Dade County 20-Year Work Plan (2014-2033) Section 4.5 (Water Conservation and Reuse), MDWASD is implementing a 20-year water conservation plan. Through the end of fiscal year 2019, a cumulative total of 15.80 MGD of water has been saved since implementation of the water conservation program. A systemwide total of 0.26 MGD/year is planned through 2040 for an additional cumulative total of 5.46 MGD.

Additionally, as part of the County's water conservation efforts, the City is mandated per County Code and its Potable Water Supply Annual Operating permit to maintain water distribution system loss to less than 10% or submit corrective action plan that includes a leak detection program. The City reports to DERM annually a Water Accounting Data Form that details City's accounted and unaccounted water usage.

3.8.2 CITY SPECIFIC ACTIONS, PROGRAMS, REGULATIONS, OR OPPORTUNITIES

The City, through the Building Department, will continue to enforce the requirement to use high efficiency fixture water saving devices for substantial rehabilitation and new construction projects as specified in the standard plumbing code. All future development within the City will be required to comply with water use efficiency techniques for indoor water use in accordance with Section 8-31, 32-83.1, 32-84 and 8A-381 of the Code of Miami-Dade County. In addition, all future development will be required to comply with the landscape standards in Section 18-A and 18-B of the Miami-Dade County Code.

Furthermore, the City is currently performing a review of City landscape ordinance Chapter 126 to better align with District's Year-Round Irrigation Rule, Chapter 40E-24, FAC. Ordinance review and update efforts are being done in conjunction with Miami-Dade County's (MDWASD) review. The County's updated landscape ordinance is currently under internal review and is tentatively scheduled to be submitted to Board of County Commissioners for first reading by June 2021 and adopted by August/September 2021. If the County's ordinance update includes all the incorporated and unincorporated cities, the City will follow County's updated landscape ordinance and will not need to update City ordinance. In the case it does not include all the incorporated cities, then the City will draft and adopt an updated ordinance similar to that of the County's, tentatively by early 2022.

The City of Miami Beach continues to administer Land Development Regulations (LDR) consistent with Section 163.3202, F.S. that also contain specific and detailed provisions required to implement the adopted Comprehensive Plan and which as a minimum:

1. Regulate the subdivision of land;
2. Regulate the use of land and water consistent with this Element and ensure the compatibility of adjacent land uses and provide for open space;
3. Protect the Conservation (beach) lands designated on the Future Land Use Map and in the Conservation Element;
4. Regulate areas subject to seasonal and periodic flooding and provide for drainage and stormwater management;
5. Regulate design of architecturally significant and oceanfront buildings;
6. Regulate signage;
7. Ensure safe and convenient traffic flow and vehicle parking needs; and
8. Provide that development orders and permits shall not be issued which result in a reduction of the level of services for the affected public facilities below the level of service standards adopted in this Comprehensive Plan.

In efforts to conserve water and reduce potable water loss through the distribution system the City began implementing a comprehensive Leak Detection Program in early 2019. The City's ongoing leak detection program consists of the following tasks and scope of work below.

Task 1- Unmetered Water/Hydrant Meter Procedures Review: review of current procedures for how these usages are accounted, tracked and billed in order to better estimate water losses and allow for better tracking of these usages. (Ongoing)

Task 2- Large Meter Field Inspection: field investigation and reporting of all 3-inch and larger City meters (approximately 354 meters). (Completed)

Task 3- City-Wide Leak Detection Survey and Pinpointing: perform a comprehensive leak survey of approximately 180 miles of water main using sonic leak detection sound amplification instruments in conjunction with other technology to pinpoint leaks. (Completed)

Task 4- Water Audit – review and evaluation of non-revenue water, difference between the amount of water billed to customers and the amount of water pumped into the distribution system using a software developed by the American Water Works Association (AWWA). (Completed)

Task 5- Meter Standard Detail: review and update of the City's water meter related standards details for completeness, accordance with industry standards and relevance to City current and future needs. (Completed)

Task 6- Leak Detection Technology Review: review of leak detection monitoring technology options for implementation in a formal leak detection program. (Completed)

Ongoing leak detection efforts are reported to DERM and are a result of having greater than 10% unaccounted for water loss throughout the City service area. The City of Miami Beach will continue to monitor and update its water distribution system to decrease water loss and conserve our precious water resources.

3.8.3 MDWASD SPECIFIC REGULATIONS

The City of Miami Beach implements water conservation efforts by following Miami-Dade County ordinances per Infrastructure Element, Objective INF 1.6: Water Conservation, Policy 1.6.6 of City of Miami Beach 2040 Comprehensive Plan. Miami-Dade County ordinances are as follow:

Sect. 8-31 - Plumbing fixtures

The maximum water consumption flow rates and quantities for all plumbing fixtures, fixture fittings and appliances shall be in accordance with Table 604.4. Effective January 1, 2009, permit applications for new residential and commercial structures shall include high efficiency plumbing fixtures, fixture fittings and appliances as provided in Table 604.4. Such high efficiency plumbing fixtures, fixture fittings and appliances shall comply with the specifications in Table 604.4 or have received the U.S. Environmental Protection Agency (EPA) WaterSense Label.

Exceptions:

1. Blowout design water closets [3.5 gallons (13L) per flushing cycle]
2. Vegetable sprays.
3. Clinical sinks [4.5 gallons (17 L) per flushing cycle].
4. Service sinks.
5. Emergency showers.

Sec. 8A-381. - Intent and application.

(a) It is the intent of this article to permit remetering and encourage the conservation of water resources.

(b) The provisions of this article shall be construed liberally to promote the following: To establish a comprehensive regulatory system to assure that the practice of remetering of water services and billing are just and reasonable; to assure that billing for water service at multiple unit properties is based on individual unit usage; to assure that Residents are charged fairly for the services provided by those engaged in remetering; to assure that Owners and Residents are protected from unscrupulous business practices; and to establish the rights and responsibilities of the Owner, Resident and the Remeterer.

(c) The provisions of this article shall apply to multiple unit properties utilizing water services. Effective January 1, 2009, all permit applications for new multifamily residential developments shall be required to include a submeter for each individual dwelling unit.

(d) Any Owner or Remeterer who has installed submeters and who has been individually billing Residents for water service prior to the adoption of this article shall have ninety (90) days from the date of enactment to comply with the provisions of this article.

(e) Any municipality that operates its own water utility in Miami-Dade County may petition, in writing, that the CSD enforce remetering for their retail customers provided that the municipality adopts an ordinance or resolution authorizing Miami-Dade County to regulate water remetering in its municipality. In such cases, all references to MDWASD shall apply to that municipality's water service.

For more information on water remetering refer to County website on Water Remetering(<https://www.miamidade.gov/global/economy/consumer-protection/water-remetering.page>).

Sect. 32-84 Water Use Efficiency Manual

The Miami-Dade Water and Sewer Department ("MDWASD"), in consultation with the Planning Department and such other applicable county departments and agencies published a Water Use Efficiency Standards Manual, effective January 2009, to achieve maximum water savings in new residential and commercial developments in the incorporated and unincorporated areas of Miami-Dade County. The manual shall be initially published on January 1, 2009 and may be updated annually on January 1 following approval by the County Commission. Each applicant for water service to a new residential or commercial development in incorporated and unincorporated areas of Miami-Dade County shall include in its application every water use efficiency standard that will be incorporated into the new development. The County or applicable municipality shall review the application for compliance with the manual. In evaluating the application for compliance, the County or applicable municipality will consider the availability of products required to implement the water use efficiency standards. The developer's agreement for water service shall include the water use efficiency standards approved by the County.

Sec. 32-86. - Water use efficiency and conservation education and outreach.

The Miami-Dade County Water Use Efficiency Manager shall provide public information, education and outreach on all water use efficiency standards and water conservation programs.

4. INTERGOVERNMENTAL COORDINATION

Miami Beach supports intergovernmental coordination efforts, strategic partnerships and enforce concurrency management requirements to maintain required levels of service for essential public facilities, and to mitigate potential adverse impacts of new development and redevelopment. Requests for development orders or permits are coordinated, as appropriate, with MDWASD, DERM and SFWMD.

Ongoing coordination efforts will continue to occur between the County and the City through the water allocation permitting process. Monthly building permit data will continue to be provided to DERM to track development activity within the City. The City will continue to monitor proposed amendments to the Miami-Dade County Comprehensive Development Master Plan as they relate to water supply planning in the adjacent beach communities and provide input as necessary.

The City and the County will continue to coordinate any new or updates to ordinances per the new regulatory requirements as we have done in the past. For example, update to City Landscape Ordinance is being closely coordinated with the County for concurrence. It is imperative that the City and the County are always in coordination and share latest information, documents and reports that pertain to both entities. MDWASD as the City's water provider and the agency that holds the water use permit that provides water to Miami Beach, needs to have latest City's water master plan. The City's 2019 Master Plan was provided to the County to better coordinate planning efforts. The City will look into implementing policies and procedures to ensure that as a City we continue to share Master Plan updates and planning efforts in the future with the County.

The City has also shared its 2020 Draft Water Supply Plan with the County, which details the City's latest water demand projections. As stated above, the City will continue to share any updated planning documents going forward. The City and the Miami-Dade County hold a 20-year wholesale water service agreement, signed in July of 2008. At the time that the City and the County renew the 20-year water agreement in 2028, further coordination will take place to make sure that MDWASD continues to meet the City's projected water demands.

5. CAPITAL IMPROVEMENT

As a wholesale customer of MDWASD, the City of Miami Beach is not responsible for providing infrastructure for the treatment of potable water within its boundaries. MDWASD provides funding for various projects related to the treatment of potable water that is subsequently distributed by the City. The City owns and operates the distribution infrastructure as well as pumping and storage facilities within its service area.

MDWASD provides water to the City of Miami Beach via the Hialeah/Preston Water Treatment Plant (WTP). Table 7 is an excerpt from the MDWASD Adopted Budget and Multi-Year Capital Plan indicating the planned improvements to the Hialeah/Preston WTP from 2019 until 2023. See Appendix B for the 2020-2026 MDWASD Adopted Budget and Multi-Year Capital Plan.

Table 7: MDWASD Adopted FY 2020-2026 Capital Budget and Multi-Year Capital Plan

WATER TREATMENT PLANT - HIALEAH/PRESTON IMPROVEMENTS									
PROJECT #: 9650041									
DESCRIPTION:	Construct pump station east of the reservoir outside the transmission loop; construct five-mega-gal elevated remote storage, new laboratory and filter backwash water tank; install two emergency generators; construct chlorine facilities; and provide various upgrades to plant and remote storage								
LOCATION:	700 W 2 Ave and 1100 W 2 Ave								
	Hialeah								
	District Located: 6								
	District(s) Served: Systemwide								
REVENUE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Future WASD Revenue Bonds	0	10,552	9,763	10,662	1,500	0	0	0	32,477
WASD Revenue Bonds Sold	26,362	0	0	0	0	0	0	0	26,362
TOTAL REVENUES:	26,362	10,552	9,763	10,662	1,500	0	0	0	58,839
EXPENDITURE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Construction	24,216	10,483	9,177	10,022	1,410	0	0	0	55,308
Planning and Design	1,546	669	586	640	90	0	0	0	3,531
TOTAL EXPENDITURES:	25,762	11,152	9,763	10,662	1,500	0	0	0	58,839
Estimated Annual Operating Impact will begin in FY 2022-23 in the amount of \$15,000,000 and includes 0 FTE(s)									

Source: MDWASD Adopted FY 2020-2026 Capital Budget and Multi-Year Capital Plan

The water supply projects included in the MDWASD Adopted FY 2020-2026 Capital Budget and Multi-Year Capital Plan stated in this Section 5 and in Appendix B will be included in the City's work plan by reference. The reference to the MDWASD's data will be incorporated into the City's 2025 Comprehensive Plan with an adopted policy.

Table 8 summarizes the Capital Improvement Projects pertaining to the City of Miami Beach water system that are currently in the adopted budget for FY 2021-2025. Refer to Appendix C for pages 75-76 of the CMB Adopted FY 2021-2025 Capital Improvement Plan for projects related to water infrastructure.

Table 8: City of Miami Beach Capital Improvement Projects (2021 – 2025)

Previous Years	
Project Description	Cost
SCADA and PLC Systems	\$ 6,000,500
Water & Wastewater Mains and Rehab	\$ 17,000,000
Water Meter Replacement	\$ 11,104,893
Water Pump Stations Improvements	\$ 1,000,000
Total	\$ 35,105,393

FY2020/2021	
Project Description	Cost
SCADA and PLC Systems	\$ 1,237,500
Water & Wastewater Mains and Rehab	\$ 9,417,709
Water Meter Replacement	\$ 5,000,000
Water Pump Stations Improvements	\$ 4,595,000
Total	\$ 9,595,000

FY2021/2022	
Project Description	Cost
Water Pump Stations Improvements	\$ 4,710,396
Total	\$ 4,710,396

The SCADA and PLC Systems project is for the City water, wastewater, and stormwater infrastructure. The water infrastructure cost for SCADA is approximately \$406,300 for FY 2020.

The City hired Hazen and Sawyer in 2018 to develop the City of Miami Beach Water Master Plan (dated October 2019) and prioritize water projects over a 25-year planning period. Based on the 2019 CMB Water Master Plan and other previously identified projects, the City proposed a five-year Critical Needs Capital Plan for water and wastewater system improvements, summarized in Table 9 per Resolution 2020-31211. Refer to Appendix D for a copy of Resolution 2020-3121, adopted in March 2020. Out of the total of \$122.3 Million, approximately \$37.5 Million were previously funded. The water projects in Table 9 include the following: Water & Wastewater Mains and Rehab, SCADA & PLC, Water Meter Replacement, Pump Station Improvements and Valve Assessment and Replacement Program. Individual 2019 Water Master Plan projects and schedule are listed in the attached Resolution 2020-3121, under Water Critical Needs Priority List table page 548 of 1097.

Table 9: Proposed 5-Year Critical Needs Capital Plan (W&WW)

Capital Project PROJECT TITLE	FY20 Est. Cost	FY21 Est. Cost	FY22 Est. Cost	FY23 Est. Cost	FY24 Est. Cost	Total
Water & Wastewater Mains and Rehab	\$ 16,093,000	\$ 10,277,855	\$ 14,214,469	\$ 15,441,872	\$ 15,268,653	\$ 71,295,848
Water Pump Station Improvements		\$ 5,592,900	\$ 4,710,396			\$ 10,303,296
Wastewater Stations Rehab.		\$ 11,103,400	\$ 5,209,019			\$ 16,312,419
Valve Assessment & Replacement Program	\$ 900,000	\$ 927,000	\$ 954,810			\$ 2,781,810
Sewer Pump Station Odor Control	\$ 850,600					\$ 850,600
SCADA & PLC (W&S only)	\$ 1,625,250					\$ 1,625,250
Wastewater Manhole Rehab.	\$ 1,500,000	\$ 1,545,000	\$ 1,591,350	\$ 1,639,091	\$ 1,688,263	\$ 7,963,704
Water Meter Replacement	\$ 11,104,893					\$ 11,104,893
TOTAL						\$ 122,237,819

Source: Resolution 2020-31211

Table 10 below indicates currently unfunded capital improvement projects that have been identified for the improvement of the City's water booster pump stations, and that are planned to be funded as capital projects in the future. These R&R estimates are for replacing pump station components at the end of their useful life and are currently being covered by the operational budget. The budget amounts indicated in Table 10 were developed based on the remaining useful life of the existing pump station components, in 2019 dollars, and adjusted for inflation at the respective end of their useful life.

Table 10: Water Projects Totals Per Year (2020 – 2025)

	2020	2021	2022	2023	2024	2025
Pump Station R&R – PS Components Estimate	\$430,326	\$748,804	\$ 2,100,414	\$ 728,998	\$ 484,336	\$ 1,334,714

6. GOAL, OBJECTIVES, AND POLICIES

These are the relevant Goals, Objectives, and Policies in the 2040 Miami Beach City's Comprehensive Plan:

6.1 FUTURE LAND USE ELEMENT

The City of Miami Beach wants to preserve and enhance the character of Miami Beach and its quality of life through the implementation of future land use and land development requirements that maximize the potential for economic benefit and the enjoyment of natural and man-made resources, while minimizing the threat to health, safety and welfare posed by hazards, nuisances, incompatible land uses, and environmental degradation.

6.1.1 OBJECTIVE RLU 1.2: LAND REGULATION

Future growth and development, redevelopment and rehabilitation will be managed through the preparation, adoption, implementation, and enforcement of land development regulations (LDR) consistent with the Comprehensive Plan and with Section.163.3202, F.S.

6.1.1.1 POLICY RLU 1.2.1

The City shall adopt and maintain Land Development Regulations and zoning districts that are based on the principles, goals, objectives, and policies; future land use categories; and maximum densities and intensities established by this plan.

6.1.2 GOAL RSE 1: RESILIENT DEVELOPMENT / ADAPTATION ACTION AREA

Increase the City's resiliency to the impacts of climate change and rising sea levels by developing and implementing adaptation strategies and measures in order to protect human life, natural systems and resources and adapt public infrastructure, services, and public and private property.

6.1.2.1 POLICY RSE 1.1.1

The City shall continue to review and amend its Comprehensive Plan, Land Development Regulations, City Code of Ordinances, and other documents where feasible and appropriate in order to implement best practices that are identified through the review of adaptation strategy publications, including the Resilient 305 Strategy, Miami Beach Strategic Plan Through the Lens of Resiliency, Miami-Dade County GreenPrint, Southeast Florida Regional Climate Action Plan, and The President's Climate Action Plan as well as other regional strategic plans, disaster mitigation plans, water management plans, transportation/transit plans, and climate change plans.

6.1.2.2 POLICY RSE 1.1.2

Based on evolving rising seas data and associated vulnerabilities, to allow for flexible adjustments, preserve future strategic adaptation implementation options to maintain maximum resiliency in response to new risks and vulnerabilities. The City will take advantage of new emerging data and technological opportunities. The City's basis for measuring sea level rise shall be as per the Southeast Florida Regional Climate Action Plan, as may be revised from time-to-time by the Southeast Florida Regional Climate Change Compact.

6.1.2.3 POLICY RSE 1.1.3

The City shall support and engage with educational institutions researching climate change, urban resilience, and adaptation strategies to attract and foster innovation and promote the City as a living laboratory.

6.1.2.4 POLICY RSE 1.1.4

The City will develop and implement adaptation strategies to coastal flooding, extreme precipitation, tidal events, storm surge, flash floods, stormwater runoff, salt water intrusion and other impacts related to climate change or exacerbated by sea level rise, with the intent to increase the community's comprehensive adaptability and resiliency capacities, which include:

- a. **Adaptation Strategies:** Strategies that involve “hard” and “soft” structurally defensive measures to mitigate impacts of rising seas in order to decrease vulnerability while allowing structures and infrastructure to remain unaltered. Two examples are shoreline armoring and beach re-nourishment. Protection strategies may be targeted for areas of a community that are location-dependent and cannot be significantly altered or relocated, such as areas of historical significance, or water-dependent uses. Protection is the priority and initial response by City government and the preferred response.
- b. **Living with Water Strategies:** Strategies that reduce the risk of damage from water by altering the design through measures such as elevation or stormwater improvements, to allow the structure of infrastructure system to stay intact. Rather than preventing flooding or inundation, these strategies aim to reduce potential risks, and accommodate water.
- c. **Management Strategies:** Strategies that involve the actual removal of existing development, their possible relocation to other areas, and/or prevention of further development in high-risk areas. This is intended to be a long-term strategy and reduce the risk when making development decisions.
- d. **Avoidance:** Strategies that involve ensuring development does not take place in areas subject to coastal hazards associated with sea level rise or where the risk is low at present but will increase over time.

e. Other options within this Element.

6.2 INFRASTRUCTURE ELEMENT

6.2.1 OBJECTIVE INF 1.1: PRIORITIES

The City will continue to provide potable water supply, sanitary sewage disposal, solid waste disposal and drainage services to meet both existing and projected needs as identified in this plan through coordination and implementation of those projects listed in the Capital Improvements Element. All improvements for replacement, expansion or increase in capacity of facilities shall conform with the adopted policies of this Plan including level of service standards for the facilities.

6.2.1.1 POLICY INF 1.1.1

Continue to participate with Miami-Dade County WASD through program cooperation with the Virginia Key Wastewater plant, the Hialeah/Preston Water Treatment Plant and the Resource Recovery Plant and continue to accept wastewater from municipalities north of the City of Miami Beach.

6.2.1.2 POLICY INF 1.1.3

The potable water network is an interconnected, countywide system; therefore, the City will cooperate with MDWASD to jointly develop methodologies and procedures for biannually updating estimates of system demand and capacity and ensure that sufficient capacity to serve development exists. The City will prepare and submit a Water Conservation Plan to the County at the same time as the City submits the updated 5-Year Water Supply Facilities Work Plan.

Last sentence of POLICY INF 1.1.3 will be amended in the City's 2040 Comprehensive Plan by reference as stated below:

The City will prepare and submit a Water Conservation Plan to the County at the same time as the City submits the updated 10-Year Water Supply Facilities Work Plan.

6.2.1.3 POLICY INF 1.5.1

The following City-wide Level of Service Standards shall be used as the basis for determining the availability of facility capacity for residential uses; the systems shall be able to provide/accommodate at least the minimums specified:

Facility/Service Area	Level of Service Standard
Sanitary Sewer Facilities	Sewage Generation Standard 140 Average gallons per capita per day
Solid Waste Facilities	Solid Waste Generation Standard 1.275 tons per capita per year
Drainage Facilities	Design Storm Standard per Storm Water Master Plan as updated from time to time.
Potable Water Facilities	Water Consumption Standard 246 Average gallons per capita per day

The average gallons per capita rate applies to the year-round standard, while the peak gallons per capita rate applies to the City during peak tourist period due to the significant seasonal influx of temporary residents. The City uses a multiplier of 1.2, which gives a 20% increase in population to estimate required services and facilities.

The following City-wide Level of Service Standards shall be used as the basis for determining the availability of facility capacity for non-residential uses; the systems shall be able to provide/accommodate at least the minimums specified:

- Hotel: 75 gallons per day per room
- Office: 0.084 gallons per day per square foot
- Retail: 0.18 gallons per day per square foot
- Industrial: 0.084 gallons per day per square foot
- Restaurant: 65 gallons per day per seat
- School: 12 gallons per day per student

POLICY INF 1.5.1 will be amended in the City's 2040 Comprehensive Plan by reference as stated below:

Potable Water Facilities Water Consumption Standard

156 Average gallons per capita per day

6.2.2 OBJECTIVE INF 1.8: WATER SUPPLY PLANNING

The City of Miami Beach shall comply with its 10-year Water Supply Facilities Work Plan, as required by section 163.3177(6)(c), F.S. The Work Plan will be updated, at a minimum, every 5 years. The City of Miami Beach Water Supply Facilities Work Plan is designed to: assess current and projected potable water demands; evaluate the sources and capacities of available water

supplies; and identify those water supply projects, using all available technologies, necessary to meet the City's water demands for a 10-year period.

6.2.2.1 POLICY INF 1.8.1

The City will comply with the "City of Miami Beach, Florida 10-year Water Supply Facilities Work Plan," adopted on October 27, 2010, and incorporate such work plan into the Miami Beach Comprehensive Plan.

POLICY INF 1.8.1 will be amended in the City's 2025 Comprehensive Plan by reference as stated below:

The City hereby adopts by reference the "City of Miami Beach, Florida 10-year Water Supply Facilities Work Plan," into the City's Comprehensive Plan, dated xxx, for planning period of not less than 10 years. The Work Plan addresses issues that pertain to water supply facilities and requirements needed to serve current and future development within the City.

6.2.2.2 POLICY INF 1.8.2

Coordinate appropriate aspects of its comprehensive plan with the South Florida Water Management District's regional water supply plan adopted November 8, 2018 and with the Miami-Dade County 20-Year Water Supply Facilities Work Plan adopted February 5, 2015, and as updated. The City shall amend its Comprehensive Plan and Work Plan as required to provide consistency with the District and County plans.

POLICY INF 1.8.2 will be amended in the City's 2025 Comprehensive Plan by reference as stated below:

Coordinate appropriate aspects of its comprehensive plan with the South Florida Water Management District's regional water supply plan approved November 8, 2018. The City shall amend its Comprehensive Plan and Work Plan as required to provide consistency with the District and County plans.

6.2.2.3 POLICY INF 1.8.3

The City shall coordinate the planning of potable water and sanitary sewer facilities and services and level-of-service standards within the Miami-Dade County Water and Sewer Department, DERM, the South Florida Water Management District, and will update the City's Work Plan within 18 months after the South Florida Water Management District updates the Lower East Coast Water Supply Plan Update.

6.2.2.4 POLICY INF 1.8.4

The City shall coordinate with Miami-Dade County WASD by requiring applications to be reviewed by WASD during the site plan review process prior to approving a Building Permit, in order to determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy for properties located within the City of Miami Beach.

Additional coordination efforts will occur between WASD and the City through the water allocation system. Monthly Building Permit data will be provided to WASD to track development activity within the City. The City will monitor proposed amendments to the Miami-Dade County Comprehensive Development Master Plan as they relate to water supply planning in the adjacent beach communities and provide input as necessary.

6.2.2.5 POLICY INF 1.8.5

The City Planning Director or a representative will attend the Miami-Dade Planners Technical Committee meeting to share information regarding water supply needs and coordinate water use issues as needed. The Planners Technical Committee is a council of professional planners representing local governments and public regulatory/review agencies in Miami-Dade County that addresses common concerns and shares resources toward solving planning problems.

6.2.2.6 POLICY INF 1.8.6 (TO BE INCORPORATED)

New Policy to be adopted by reference that incorporates the Draft 2020 Miami-Dade County Work Plan Update into the City's Comprehensive Plan:

The City hereby adopts by reference the Draft Miami-Dade Water and Sewer Department 10-Year Water Supply Facilities Work Plan, dated October 2020, for a planning period of not less than 10 years. The Work Plan addresses issues that pertain to water supply facilities and requirements needed to serve current and future development within the City's water service area. The City shall review and update the Work Plan at least every 5 years, within 18 months after the Governing Board of the water management district approves an updated regional water supply plan. Any changes affecting the Work Plan shall be included in the annual Capital Improvements Plan update to ensure consistency between the Potable Water Sub-Element and the Capital Improvements Element.

6.2.3 OBJECTIVE INF 1.9

Implementation of the 10-year Water Supply Facilities Work Plan will ensure that adequate water supplies and public facilities are available to serve the water supply demands of the City's population.

6.2.4 OBJECTIVE INF 1.9.1

If in the future there are issues associated with water supply, conservation or reuse the City will immediately contact WASD to address the corresponding issue(s). In addition, the City will follow adopted communication protocols with WASD to communicate and/or prepare an appropriate action plan to address any relevant issue associated with water supply, conservation or reuse.

6.2.5 OBJECTIVE INF 1.9.2

The City will require the use of High Efficiency Toilets; High Efficiency Showerheads; High Efficiency Faucets; High Efficiency Clothes Washers; and Dishwashers that are Energy Star rated and Water Sense certified in all new and redeveloped residential projects.

6.2.6 OBJECTIVE INF 1.9.3

The City should educate the development community on the benefits of sub-metering for multi-family residential retrofit projects which will include separate water meters and monthly records kept of all major water-using functions such as cooling towers and individual units. The City will explore starting a pilot incentive program as a means of encouraging developers that retrofit units to install separate meters and high efficiency appliances. The City will require new multi-family residential developments to install separate water meters for each unit.

6.2.7 OBJECTIVE INF 1.9.4

The City will educate the development community on the water saving benefits of the use of Florida Friendly Landscapes guidelines and principles; gutter downspouts, roof runoff, and rain harvesting through the use of rain barrels and directing runoff to landscaped areas; drip irrigation or micro-sprinklers; and the use of porous surface materials (bricks, gravel, turf block, mulch, pervious concrete, etc.) on walkways, driveways and patios.

6.2.8 OBJECTIVE INF 1.9.5

The City will participate, when warranted, in the SFWMD's Water Savings Incentive Program (WaterSIP) for large-scale retrofits as recommended by the Lower East Coast Water Supply Plan.

6.2.9 OBJECTIVE INF 1.9.6

The City will continue to enforce the landscape watering restrictions mandated by the South Florida Water Management District. The City will continue to use code enforcement measures such as issuing warning and fines to enforce the water restrictions.

6.2.10 OBJECTIVE INF 1.9.7

The City will continue to coordinate with Miami-Dade Water and Sewer Department related to leak detection and repair of water lines throughout the City.

OBJECTIVE INF 1.9.7 will be amended in the City's 2025 Comprehensive Plan by reference as stated below:

The City will continue to coordinate with DERM related to leak detection and repair of water lines throughout the City.

6.3 CONSERVATION ELEMENT

6.3.1 OBJECTIVE INF 1.6: WATER CONSERVATION

Cooperate with WASD to continue to implement the City's comprehensive water conservation program to ensure that a sufficient, economical supply of fresh water is available to meet current and future demand for potable water.

6.3.1.1 POLICY INF 1.6.6

The City, through the Building Department, will continue to enforce the requirement to use high efficiency volume water saving devices for substantial rehabilitation and new construction projects as specified in the standard plumbing code. All future development within the City will be required to comply with water use efficiency techniques for indoor water use in accordance with Section 8- 31, 32-83.1, 32-84 and 8A-381 of the Code of Miami-Dade County. In addition, all future development will be required to comply with the landscape standards in Section 18-A and 18-B of the Miami-Dade County Code.

6.4 INTERGOVERNMENTAL COORDINATION ELEMENT

Establish strategic partnerships and coordinate development and policy review processes among the various governmental, public and private entities to address service needs, infrastructure, and climate resiliency in the region.

6.4.1 OBJECTIVE ICE 1.1: COORDINATION MECHANISMS

Provide a formal process for intergovernmental coordination among the city and local, regional, State and Federal governmental entities and agencies to establish specific coordination activities to occur on a regular basis.

6.4.1.1 POLICY ICE 1.1.8

The City will coordinate with Miami-Dade County WASD in the review of site plans prior to the issuance of a building permit to determine whether adequate water supplies will be available to serve new development no later than the date of the certificate of occupancy.

6.4.1.2 POLICY ICE 1.1.9

The City shall coordinate the planning of potable water and sanitary sewer facilities and services and level of service standards within the Miami-Dade County WASD, DERM, the South Florida Water Management District, and the Lower East Coast Water Supply Plan Update.

6.4.1.3 POLICY ICE 1.1.12

The City will collaborate and coordinate with appropriate local, regional, state, and national governmental agencies and establish strategic partnerships where feasible to address climate resiliency as guided by the Goals, Objectives, and Policies of the Resiliency and Sustainability Element.

6.4.1.4 POLICY ICE 1.1.13

The City will continue to coordinate with Miami-Dade County and the City of Miami to implement the Resilient 305 Strategy.

6.5 CAPITAL IMPROVEMENT ELEMENT

6.5.1 OBJECTIVE CIP 1.3: IMPACT FEE PROGRAM

Continue to participate in the Miami-Dade County Development Impact Fee Program to secure a financial contribution from any development that necessitates new or expanded potable water, sanitary and storm sewer, transportation, and solid waste based on a proportional share of the cost of the improvements.

6.5.1.1 POLICY CIP 1.5.3

The City shall continue to maintain and provide potable water, sanitary sewer, solid waste disposal and drainage facilities at adopted level of service standards to ensure that adequate facility capacity is available for proposed and existing commercial and residential developments within its jurisdiction. These level of service standards are established in this Plan's Infrastructure Element.

POLICY CIP 1.5.3 will be amended in the City's 2025 Comprehensive Plan by reference to include the Level of Service Standards included in the Work Plan's Infrastructure Element to be adopted for all infrastructure facilities, including potable water facilities.

6.5.2 OBJECTIVE CIP 1.6: INFRASTRUCTURE EXPENDITURES

Limit public infrastructure expenditures that subsidize development in the City-wide Coastal High Hazard Area except for restoration and enhancement of natural resources; the measure shall be 0 projects inconsistent with Policies 1.6.1 through 1.6.5 and 1.8.1 in the Capital Improvement Schedule.

6.5.2.1 POLICY CIP 1.6.3

The City will continue to expend funds as needed to maintain, repair, renew, replace or expand storm water drainage and pump system facilities.

6.5.2.2 POLICY CIP 1.6.4

The City will continue to expend funds as needed to maintain, repair, renew, replace or expand recreational, beach access and water access facilities.

6.5.2.3 POLICY CIP 1.6.5

The City will continue to expend funds as needed to maintain, repair, renew, replace or expand facilities that protect the dune system or other environmental assets to support efforts of climate resiliency and natural habitat preservation.

7. REFERENCES

1. Hazen and Sawyer. (2019). Water System Master Plan.
2. Miami-Dade Water and Sewer Department. (2014). 20-Year Water Supply Facilities Work Plan (MDWASD 2014 – 2033).
3. Miami-Dade Water and Sewer Department. (2020). Adopted FY 2020-2026 Capital Budget and Multi-Year Capital Plan
4. KCI. (2019). 2040 Miami Beach Comprehensive Plan.
5. South Florida Water Management District. (2018). Lower East Coast Water Supply Plan Update.

APPENDIX A

Figures

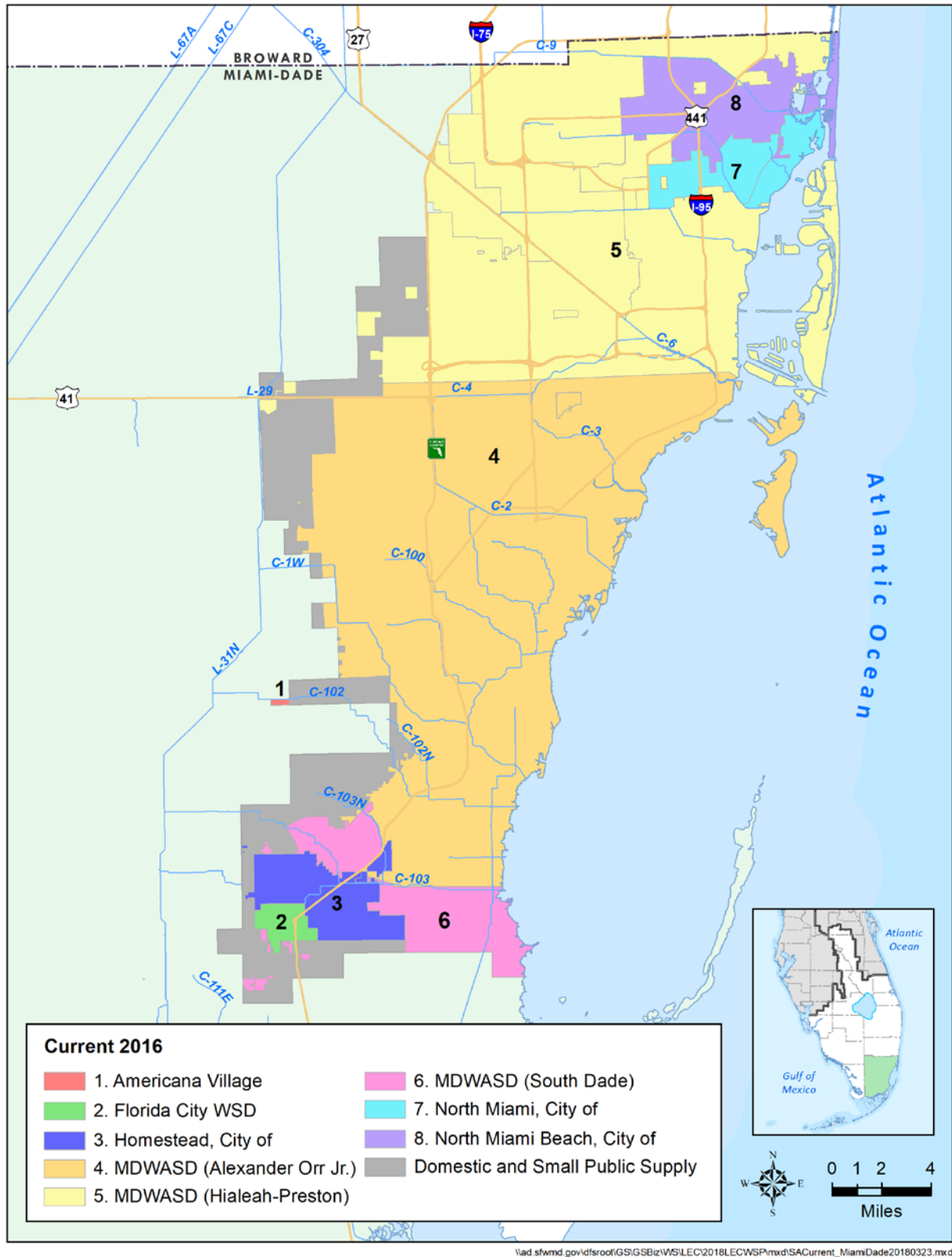
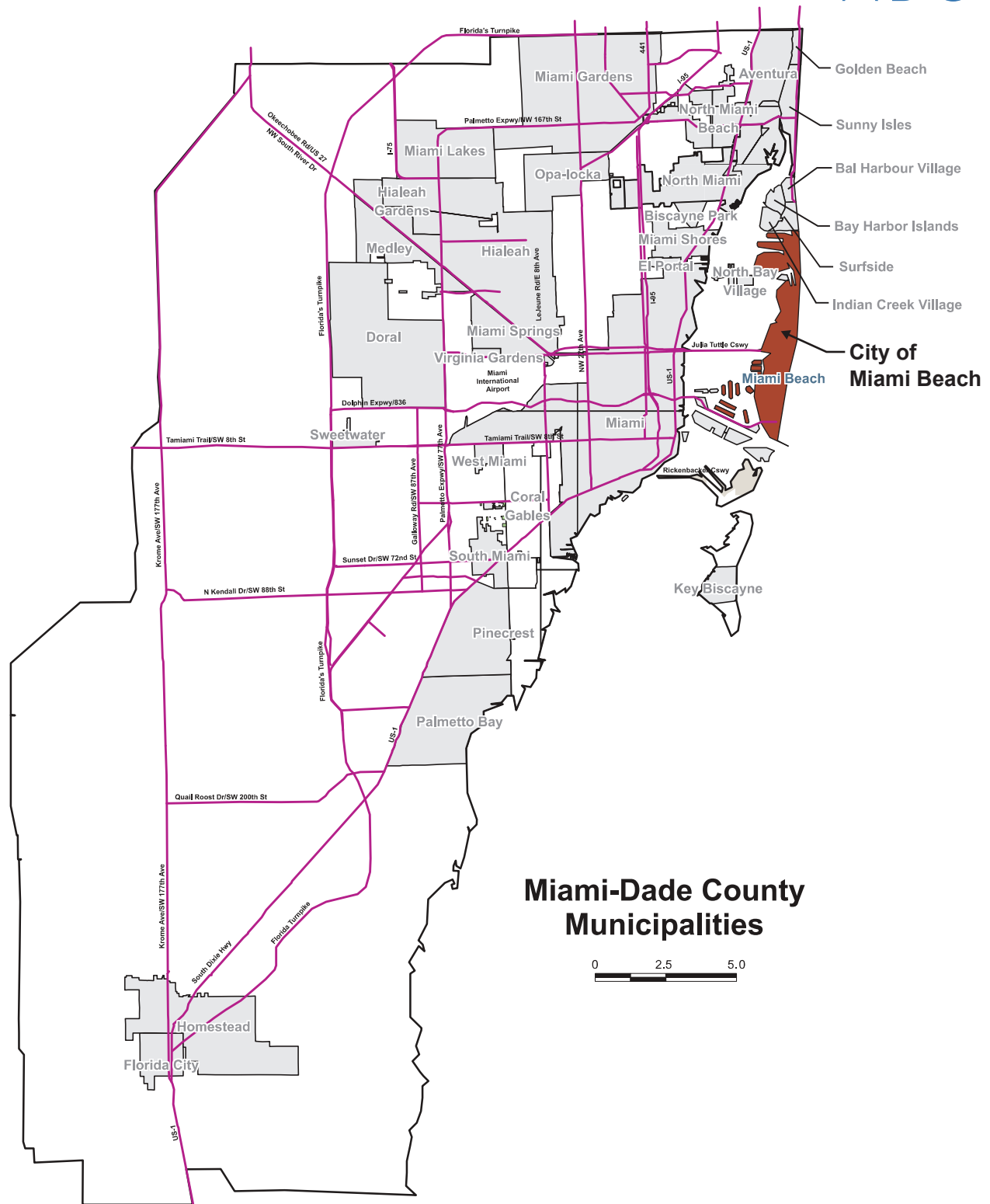


Figure 2 Current (2016) public water supply utility service areas in Miami-Dade County.

MIAMI BEACH RISING ABOVE



Miami-Dade County Municipalities

0 2.5 5.0

Figure 1
City of Miami Beach Water Service Area

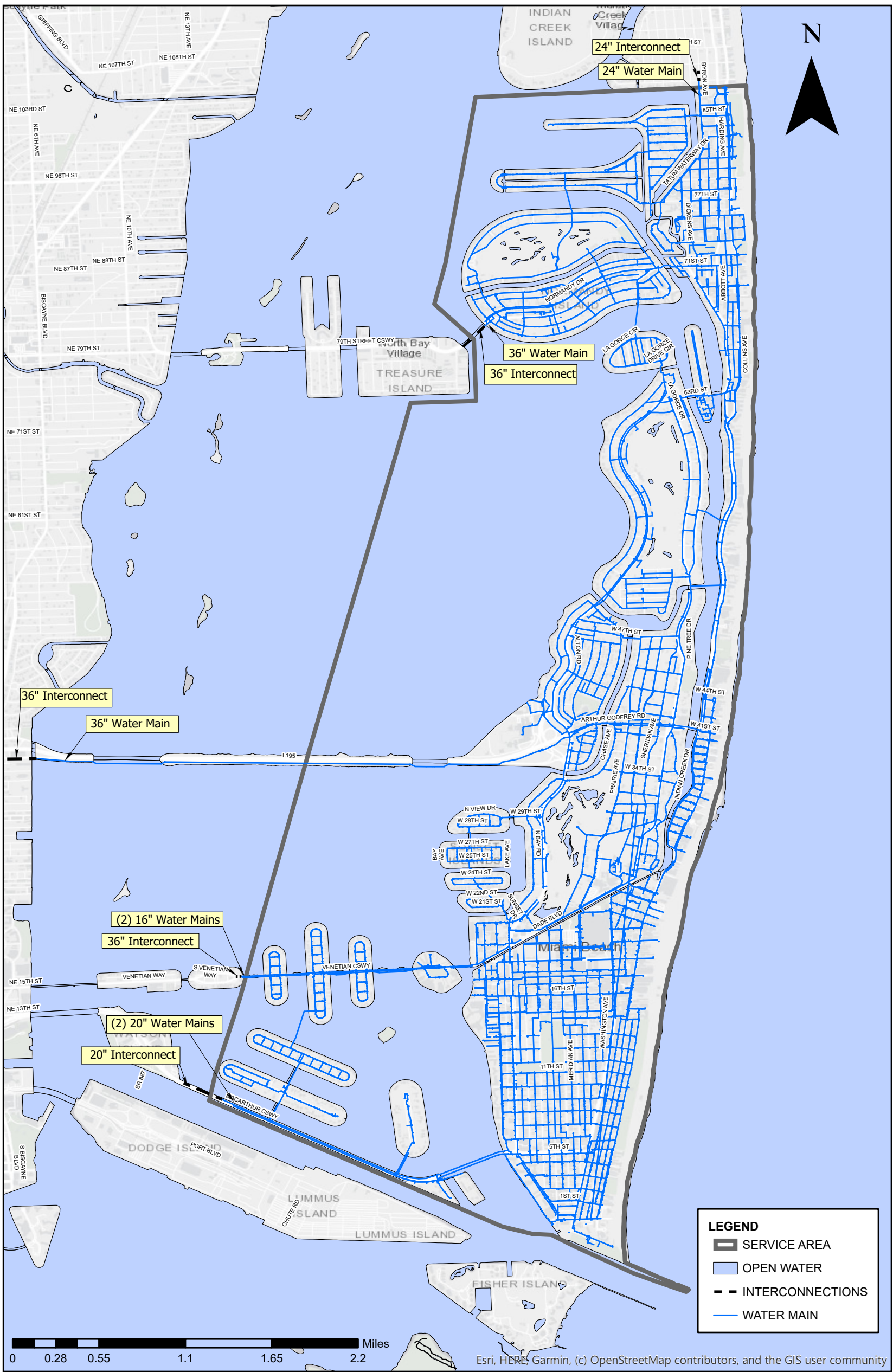


Figure 3
Water Supply Interconnects with MDWASD

Source: CMB 2019 Water Master Plan

APPENDIX B

MDWASD Adopted FY 2020-2026 Capital Budget and Multi-Year Capital Plan



MIAMI-DADE WATER AND SEWER DEPARTMENT
ADOPTED FY 2020-2026 CAPITAL BUDGET AND
MULTI-YEAR CAPITAL PLAN



BCC APPROVED
SEPTEMBER 17, 2020

FY 2020 - 21 Adopted Budget and Multi-Year Capital Plan

EXPENDITURE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Construction	28,299	11,679	19,741	29,319	23,658	21,791	0	0	134,487
Planning and Design	8,336	614	1,039	1,543	1,245	1,147	0	0	13,924
TOTAL EXPENDITURES:	36,635	12,293	20,780	30,862	24,903	22,938	0	0	148,411

WATER TREATMENT PLANT - AUTOMATION

PROJECT #: 963110

DESCRIPTION: Construct facilities and install equipment to automate functions at water treatment plants
 LOCATION: Systemwide District Located: Systemwide
 Various Sites District(s) Served: Systemwide



REVENUE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
WASD Revenue Bonds Sold	2,247	0	0	0	0	0	0	0	2,247
TOTAL REVENUES:	2,247	0	0	0	0	0	0	0	2,247
EXPENDITURE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Construction	877	741	0	0	0	0	0	0	1,618
Planning and Design	341	288	0	0	0	0	0	0	629
TOTAL EXPENDITURES:	1,218	1,029	0	0	0	0	0	0	2,247

WATER TREATMENT PLANT - FLORIDIAN REVERSE OSMOSIS

PROJECT #: 966620

DESCRIPTION: Construct a 10-million gallons per day (MGD) Reverse Osmosis Treatment Plant using Upper Floridian Aquifer; the jointly owned plant will equally serve the City of Hialeah and WASD service areas; total cost of \$160 million, includes contribution and expenditures of \$80 million from City of Hialeah
 LOCATION: 700 W 2 Ave District Located: 6
 Hialeah District(s) Served: Systemwide



REVENUE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Future WASD Revenue Bonds	0	1,000	800	0	0	0	0	0	1,800
WASD Revenue Bonds Sold	647	0	0	0	0	0	0	0	647
Water Connection Charges	5,697	0	0	0	0	0	0	0	5,697
Water Renewal and Replacement	121	0	0	0	0	0	0	0	121
Fund									
TOTAL REVENUES:	6,465	1,000	800	0	0	0	0	0	8,265
EXPENDITURE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Construction	6,465	970	776	0	0	0	0	0	8,211
Planning and Design	0	30	24	0	0	0	0	0	54
TOTAL EXPENDITURES:	6,465	1,000	800	0	0	0	0	0	8,265

WATER TREATMENT PLANT - HIALEAH/PRESTON IMPROVEMENTS

PROJECT #: 9650041

DESCRIPTION: Construct pump station east of the reservoir outside the transmission loop; construct five-mega-gal elevated remote storage, new laboratory and filter backwash water tank; install two emergency generators; construct chlorine facilities; and provide various upgrades to plant and remote storage
 LOCATION: 700 W 2 Ave and 1100 W 2 Ave District Located: 6
 Hialeah District(s) Served: Systemwide



FY 2020 - 21 Adopted Budget and Multi-Year Capital Plan

REVENUE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Future WASD Revenue Bonds	0	10,552	9,763	10,662	1,500	0	0	0	32,477
WASD Revenue Bonds Sold	26,362	0	0	0	0	0	0	0	26,362
TOTAL REVENUES:	26,362	10,552	9,763	10,662	1,500	0	0	0	58,839
EXPENDITURE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Construction	24,216	10,483	9,177	10,022	1,410	0	0	0	55,308
Planning and Design	1,546	669	586	640	90	0	0	0	3,531
TOTAL EXPENDITURES:	25,762	11,152	9,763	10,662	1,500	0	0	0	58,839

Estimated Annual Operating Impact will begin in FY 2022-23 in the amount of \$15,000,000 and includes 0 FTE(s)

WATER TREATMENT PLANT - REPLACEMENT AND RENOVATIONS

PROJECT #: 9650161



DESCRIPTION: Renovate and replace water treatment plant facilities and structures within plant sites

LOCATION: Water Treatment Plants
Various Sites

District Located: Systemwide
District(s) Served: Systemwide

REVENUE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Future WASD Revenue Bonds	0	545	229	1,000	1,000	0	0	0	2,774
Water Renewal and Replacement Fund	36,008	9,298	1,500	1,500	1,500	1,500	1,500	1,500	54,306
TOTAL REVENUES:	36,008	9,843	1,729	2,500	2,500	1,500	1,500	1,500	57,080
EXPENDITURE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Construction	26,328	9,252	9,145	2,350	2,350	1,410	1,410	1,410	53,655
Major Machinery and Equipment	560	197	195	50	50	30	30	30	1,142
Planning and Design	1,120	394	389	100	100	60	60	60	2,283
TOTAL EXPENDITURES:	28,008	9,843	9,729	2,500	2,500	1,500	1,500	1,500	57,080

WATER TREATMENT PLANT - SOUTH MIAMI HEIGHTS

PROJECT #: 9652821



DESCRIPTION: Construct water treatment plant, wellfields and various water transmission mains in south Miami-Dade County

LOCATION: 11800 SW 208 St
Unincorporated Miami-Dade County

District Located: 9
District(s) Served: Systemwide

REVENUE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Future WASD Revenue Bonds	0	1,100	1,075	1,000	1,000	10,300	0	0	14,475
WASD Revenue Bonds Sold	34,153	0	0	0	0	0	0	0	34,153
TOTAL REVENUES:	34,153	1,100	1,075	1,000	1,000	10,300	0	0	48,628
EXPENDITURE SCHEDULE:	PRIOR	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	FUTURE	TOTAL
Construction	31,080	1,001	978	910	910	9,373	0	0	44,252
Planning and Design	3,073	99	97	90	90	927	0	0	4,376
TOTAL EXPENDITURES:	34,153	1,100	1,075	1,000	1,000	10,300	0	0	48,628

FY 2020 - 21 Adopted Budget and Multi-Year Capital Plan

UNFUNDED CAPITAL PROJECTS

(dollars in thousands)

PROJECT NAME	LOCATION	ESTIMATED PROJECT COST
OCEAN OUTFALLS - CAPACITY PROJECTS	Throughout Miami Dade County	1,730,281
OCEAN OUTFALLS - LEGISLATION PROJECTS	Throughout Miami Dade County	3,374,000
UNDERSIZED WATER MAINS - REPLACEMENTS	Throughout Miami Dade County	15,963
WASTEWATER - COMMERCIAL CORRIDORS ECONOMIC DEVELOPMENT	Throughout Miami Dade County	143,601
WASTEWATER TREATMENT PLANT - CENTRAL DISTRICT IMPROVEMENTS	Throughout Miami Dade County	699
WASTEWATER TREATMENT PLANT - SOUTH DISTRICT IMPROVEMENTS	Throughout Miami Dade County	6,075
WATER - COMMERCIAL CORRIDORS ECONOMIC DEVELOPMENT	Throughout Miami Dade County	480,016
WATER INFRASTRUCTURE - VARIOUS IMPROVEMENTS	Throughout Miami Dade County	5,700
WATER TREATMENT PLANT (ALEX ORR) - IMPROVEMENTS	Throughout Miami Dade County	33,863
WATER TREATMENT PLANT (HIALEAH) - IMPROVEMENTS	Throughout Miami Dade County	21,620
WATER TREATMENT PLANT (PRESTON) - IMPROVEMENTS	Throughout Miami Dade County	57,331
WATER TREATMENT PLANTS - NEW FACILITIES SOUTH MIAMI AND SURFACE	Throughout Miami Dade County	690,818
UNFUNDED TOTAL		3,189,341

APPENDIX C

City of Miami Beach Adopted FY 2021-2025 Capital Improvement Plan

ADOPTED FY 2021-2025 CAPITAL IMPROVEMENT PLAN & FY 2021 CAPITAL BUDGET



MIAMI BEACH
Miami Beach Redevelopment Agency, Florida



**FY 2021 - 2025 CAPITAL IMPROVEMENT PLAN BY FUNDING SUMMARY
CITY OF MIAMI BEACH**

PROJECT	PROJECT NAME	Previous Years	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Future	Total
418 W&S CAP PROJ FNDED BY OPER FDS									
20527	FDOT UTILITES RELOCATION	-	221,175	-	-	-	-	-	221,175
20607	11TH STREET-FLAMINGO NEIGHBORHOOD	40,468	-	-	-	-	-	-	40,468
23000	SUNSET HARBOUR PUMPSTATION UPGRADES	1,013,016	-	-	-	-	-	-	1,013,016
23360	WEST AVE/BAY RD NEIGHBORHOOD	376,706	-	-	-	-	-	-	376,706
27370	54IN DIAMETER REDUNDANT SEWER FORCE	2,370,395	-	-	-	-	-	-	2,370,395
28120	WATER PUMP STATIONS IMPROVEMENTS	1,000,000	-	-	-	-	-	-	1,000,000
28220	WASTEWATER MANHOLE REHABILITATION	1,500,000	1,545,000	1,591,350	-	-	-	-	4,636,350
28320	SEWER PUMP STATION ODOR CONTROL	850,600	-	-	-	-	-	-	850,600
28420	SWR PUMP STATION # 18 IMPROVEMENTS	700,000	700,000	-	-	-	-	-	1,400,000
28520	WATER & WASTEWATER MAINS AND REHAB	-	140,889	-	-	-	-	-	140,889
60319	WATER METER REPLACEMENT PROGRAM	9,104,893	-	-	-	-	-	-	9,104,893
60419	DERM & EPA CONSENT DECREE	900,000	500,000	500,000	500,000	500,000	-	-	2,900,000
63918	PUBLIC WORKS FACILITY RENOVATION	106,890	-	-	-	-	-	-	106,890
66818	WATER STATION ROOF REPLACEMENT	30,000	-	-	-	-	-	-	30,000
Fund Total:		17,992,968	3,107,064	2,091,350	500,000	500,000	-	-	24,191,382
419 2017 WATER & SEWER BONDS									
20527	FDOT UTILITES RELOCATION	677,529	-	-	-	-	-	-	677,529
20597	WEST AVENUE PHASE II	18,333,671	-	-	-	-	-	-	18,333,671
20607	11TH STREET-FLAMINGO NEIGHBORHOOD	2,495,457	-	-	-	-	-	-	2,495,457
20619	WASTE WATER STATIONS REHABILITATION	4,500,000	6,603,400	-	-	-	-	-	11,103,400
20719	SCADA AND PLC SYSTEMS	3,137,750	-	-	-	-	-	-	3,137,750
21270	VENETIAN NEIGHBORHOOD -ISLANDS	597,022	-	-	-	-	-	-	597,022
23000	SUNSET HARBOUR PUMPSTATION UPGRADES	539,631	-	-	-	-	-	-	539,631
23220	NORTH SHORE NEIGHBORHOOD IMPROVEMENTS	138,427	-	-	-	-	-	-	138,427
23240	LA GORCE NEIGHBORHOOD IMPROVEMENTS	297,347	-	-	-	-	-	-	297,347
23360	WEST AVE/BAY RD NEIGHBORHOOD	110,000	-	-	-	-	-	-	110,000
23380	PALM & HIBISCUS ISLAND ENHANCEMENT	3,963,099	-	-	-	-	-	-	3,963,099
27370	54IN DIAMETER REDUNDANT SEWER FORCE	3,997,327	-	-	-	-	-	-	3,997,327
28120	WATER PUMP STATIONS IMPROVEMENTS	-	4,595,000	-	-	-	-	-	4,595,000
28520	WATER & WASTEWATER MAINS AND REHAB	17,000,000	9,276,820	-	-	-	-	-	26,276,820
28940	BAYSHORE NEIGHBORHOOD CENTRAL - SOUTH	3,616,516	-	-	-	-	-	-	3,616,516
60319	WATER METER REPLACEMENT PROGRAM	2,000,000	5,000,000	-	-	-	-	-	7,000,000
65421	VALVE REPLACEMENT PROGRAM	-	931,635	959,584	-	-	-	-	1,891,219
Fund Total:		61,403,776	26,406,855	959,584	-	-	-	-	88,770,215

FY 2021 - 2025 CAPITAL IMPROVEMENT PLAN BY FUNDING SOURCE



FY 2021 - 2025 CAPITAL IMPROVEMENT PLAN BY FUNDING SUMMARY CITY OF MIAMI BEACH

PROJECT	PROJECT NAME	Previous Years	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Future	Total
420 W&S GBL SERIES 2010 2009-27243									
20527	FDOT UTILITES RELOCATION	-	178,825	-	-	-	-	-	178,825
21270	VENETIAN NEIGHBORHOOD -ISLANDS	2,766,100	-	-	-	-	-	-	2,766,100
22050	BAYSHORE NEIGHBORHOOD BID PACK A	3,895,513	-	-	-	-	-	-	3,895,513
23000	SUNSET HARBOUR PUMPSTATION UPGRADES	2,500,062	-	-	-	-	-	-	2,500,062
23180	BAYSHORE NEIGHBORHOOD BID PACK D	2,850,793	-	-	-	-	-	-	2,850,793
23220	NORTH SHORE NEIGHBORHOOD IMPROVEMENTS	2,368,323	-	-	-	-	-	-	2,368,323
23360	WEST AVE/BAY RD NEIGHBORHOOD	1,632,360	-	-	-	-	-	-	1,632,360
23380	PALM & HIBISCUS ISLAND ENHANCEMENT	2,547,712	-	-	-	-	-	-	2,547,712
27370	54IN DIAMETER REDUNDANT SEWER FORCE	566	-	-	-	-	-	-	566
Fund Total:		18,561,429	178,825	-	-	-	-	-	18,740,254
422 WATER AND SEWER IMPACT FEES									
23180	BAYSHORE NEIGHBORHOOD BID PACK D	97,000	-	-	-	-	-	-	97,000
Fund Total:		97,000	-	-	-	-	-	-	97,000
423 GULF BREEZE 2006									
21270	VENETIAN NEIGHBORHOOD -ISLANDS	1,134,463	-	-	-	-	-	-	1,134,463
22050	BAYSHORE NEIGHBORHOOD BID PACK A	765,052	-	-	-	-	-	-	765,052
23240	LA GORCE NEIGHBORHOOD IMPROVEMENTS	56,000	-	-	-	-	-	-	56,000
23380	PALM & HIBISCUS ISLAND ENHANCEMENT	2,828,927	-	-	-	-	-	-	2,828,927
28940	BAYSHORE NEIGHBORHOOD CENTRAL - SOUTH	106,792	-	-	-	-	-	-	106,792
Fund Total:		4,891,234	-	-	-	-	-	-	4,891,234
424 WATER & SEWER BONDS 2000S									
21270	VENETIAN NEIGHBORHOOD -ISLANDS	3,659,741	-	-	-	-	-	-	3,659,741
22050	BAYSHORE NEIGHBORHOOD BID PACK A	2,893,609	-	-	-	-	-	-	2,893,609
23180	BAYSHORE NEIGHBORHOOD BID PACK D	777,897	-	-	-	-	-	-	777,897
23220	NORTH SHORE NEIGHBORHOOD IMPROVEMENTS	2,024,350	-	-	-	-	-	-	2,024,350
23240	LA GORCE NEIGHBORHOOD IMPROVEMENTS	524,662	-	-	-	-	-	-	524,662
23300	FLAMINGO NEIGHBORHOOD-SOUTH	1,211,126	-	-	-	-	-	-	1,211,126
23360	WEST AVE/BAY RD NEIGHBORHOOD	1,063,111	-	-	-	-	-	-	1,063,111
23380	PALM & HIBISCUS ISLAND ENHANCEMENT	1,222,509	-	-	-	-	-	-	1,222,509
27370	54IN DIAMETER REDUNDANT SEWER FORCE	78,434	-	-	-	-	-	-	78,434
28940	BAYSHORE NEIGHBORHOOD CENTRAL - SOUTH	1,715	-	-	-	-	-	-	1,715
Fund Total:		13,457,154	-	-	-	-	-	-	13,457,154
425 WATER AND SEWER ENTERPRISE FUN									
21270	VENETIAN NEIGHBORHOOD -ISLANDS	1,529,777	-	-	-	-	-	-	1,529,777
22050	BAYSHORE NEIGHBORHOOD BID PACK A	50,770	-	-	-	-	-	-	50,770
23180	BAYSHORE NEIGHBORHOOD BID PACK D	358,785	-	-	-	-	-	-	358,785



CITY OF MIAMI BEACH
FY 2021 - 2025 Capital Budget and 5-Year Capital Improvement Plan

I. General

SCADA AND PLC SYSTEMS

UTILITIES

Project Number: 20719
 Department: PW ENGINEERING
 Location: CITYWIDE
 Description: SCADA and PLC Replacement for Water, Wastewater, and Stormwater Pumping Stations. This Project began in FY 2016/17 and may need additional funding to insure project completion. The original scope in last years budget proposed \$2,500,000 for the SCADA and \$250,000 for the PLC replacement. Estimations may have been inadequate for funding and may need additional funding source to complete the project.
 Projected date range: 10/01/2018 to 12/31/2021

II. Cost Summary

Cost Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
EQUIPMENT	5,776,434	1,231,343	-	-	-	-	-	7,007,777
FEASIBILITY STUDY	195,066	-	-	-	-	-	-	195,066
OIG FUNDING	29,000	6,157	-	-	-	-	-	35,157
Total:	6,000,500	1,237,500	-	-	-	-	-	7,238,000

III. Fund Summary

Fund Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
419 2017 WATER & SEWER BONDS	3,137,750	-	-	-	-	-	-	3,137,750
429 2017 STORMWATER BONDS	2,862,750	1,237,500	-	-	-	-	-	4,100,250
Total:	6,000,500	1,237,500	-	-	-	-	-	7,238,000



CITY OF MIAMI BEACH
FY 2021 - 2025 Capital Budget and 5-Year Capital Improvement Plan

I. General

VALVE REPLACEMENT PROGRAM

UTILITIES

Project Number: 65421
 Department: PW ADMINISTRATION
 Location: CITYWIDE
 Description: This project will provide improvements to the water and sewer system. The improvements will include identification of valves requiring replacement and the performance of a condition assessment, design and replacement in accordance to the CMB Public Works Standards.
 Projected date range: 10/01/2020 to 12/31/2022

II. Cost Summary

Cost Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
CONTRACTED SERVICES REPAIR	-	-	959,584	-	-	-	-	959,584
OIG FUNDING	-	4,635	-	-	-	-	-	4,635
OTHER CONTRACTUAL SERVICES	-	927,000	-	-	-	-	-	927,000
Total:	-	931,635	959,584	-	-	-	-	1,891,219

III. Fund Summary

Fund Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
419 2017 WATER & SEWER BONDS	-	931,635	959,584	-	-	-	-	1,891,219
Total:	-	931,635	959,584	-	-	-	-	1,891,219

I. General

WATER & WASTEWATER MAINS AND REHAB

UTILITIES

Project Number: 28520
 Department: PW ENGINEERING
 Location: CITYWIDE
 Description: Rehabilitation of the water and wastewater mainlines.
 Projected date range: 10/01/2019 to 12/31/2025

II. Cost Summary

Cost Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
CONSTRUCTION	16,600,000	9,370,855	-	14,214,469	15,441,872	15,268,653	-	70,895,849
DESIGN AND ENGINEERING	350,000	-	-	-	-	-	-	350,000
OIG FUNDING	50,000	46,854	-	-	-	-	-	96,854
Total:	17,000,000	9,417,709	-	14,214,469	15,441,872	15,268,653	-	71,342,703

III. Fund Summary

Fund Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
418 W&S CAP PROJ FNDED BY OPER FDS	-	140,889	-	-	-	-	-	140,889
419 2017 WATER & SEWER BONDS	17,000,000	9,276,820	-	-	-	-	-	26,276,820
FWS FUTURE WATER & SEWER	-	-	-	14,214,469	15,441,872	15,268,653	-	44,924,994
Total:	17,000,000	9,417,709	-	14,214,469	15,441,872	15,268,653	-	71,342,703



CITY OF MIAMI BEACH
FY 2021 - 2025 Capital Budget and 5-Year Capital Improvement Plan

I. General

WATER METER REPLACEMENT PROGRAM

UTILITIES

Project Number: 60319
 Department: PW ADMINISTRATION
 Location: CITYWIDE
 Description: This project is to address the need for a water meter replacement program currently not established. These funds will start a multiple year project to replace meters that have not been replaced on a regular schedule.
 Projected date range: 10/01/2018 to 09/30/2022

II. Cost Summary

Cost Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
EQUIPMENT	9,058,893	-	-	-	-	-	-	9,058,893
OIG FUNDING	56,000	24,876	-	-	-	-	-	80,876
OTHER CONTRACTUAL SERVICES	1,990,000	4,975,124	-	-	-	-	-	6,965,124
Total:	11,104,893	5,000,000	-	-	-	-	-	16,104,893

III. Fund Summary

Fund Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
418 W&S CAP PROJ FNDED BY OPER FDS	9,104,893	-	-	-	-	-	-	9,104,893
419 2017 WATER & SEWER BONDS	2,000,000	5,000,000	-	-	-	-	-	7,000,000
Total:	11,104,893	5,000,000	-	-	-	-	-	16,104,893

I. General

WATER PUMP STATIONS IMPROVEMENTS

UTILITIES

Project Number: 28120
 Department: PW ENGINEERING
 Location: CITYWIDE
 Description: Requesting additional funds to replace the leaking old cast iron pipes at water pump stations. This project would replace all existing old oversized cast iron pipes and fittings at the pump station to standard ductile iron pipes and fittings. By- pass pumps will needed to be installed to keep the station and both 4-million-gallons water storage tanks in operation while repairs are being made.
 Projected date range: 10/01/2019 to 09/30/2024

II. Cost Summary

Cost Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
CONSTRUCTION	795,000	(22,861)	4,710,396	-	-	-	-	5,482,535
CONTRACTED SERVICES REPAIR	-	4,595,000	-	-	-	-	-	4,595,000
DESIGN AND ENGINEERING	200,000	-	-	-	-	-	-	200,000
OIG FUNDING	5,000	22,861	-	-	-	-	-	27,861
Total:	1,000,000	4,595,000	4,710,396	-	-	-	-	10,305,396

III. Fund Summary

Fund Summary	Previous Years	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25	Future	Total
418 W&S CAP PROJ FNDED BY OPER FDS	1,000,000	-	-	-	-	-	-	1,000,000
419 2017 WATER & SEWER BONDS	-	4,595,000	-	-	-	-	-	4,595,000
FWS FUTURE WATER & SEWER	-	-	4,710,396	-	-	-	-	4,710,396
Total:	1,000,000	4,595,000	4,710,396	-	-	-	-	10,305,396

APPENDIX D

Resolution 2020-31211 Passed and Adopted on March 18, 2020

RESOLUTION NO. 2020-31211

A RESOLUTION OF THE MAYOR AND CITY COMMISSION OF THE CITY OF MIAMI BEACH, FLORIDA, ACCEPTING THE RECOMMENDATION OF THE FINANCE AND ECONOMIC RESILIENCY COMMITTEE AT ITS FEBRUARY 28, 2020 MEETING, TO ACCEPT THE FIVE-YEAR CRITICAL NEEDS CAPITAL PLAN FOR THE CITY'S WATER AND WASTEWATER SYSTEM, TO APPROVE THE USE OF THE \$24 MILLION AVAILABLE FROM BOND PROCEEDS, AND TO COMMENCE A RATE STUDY OF THE WATER AND WASTEWATER UTILITY TO DETERMINE FINANCIAL CAPACITY FOR THE WATER AND WASTEWATER WORK ASSOCIATED WITH THE JACOBS ENGINEERING NEIGHBORHOOD PRIORITIZATION AND THE REMAINING \$61 MILLION DOLLARS OF CRITICAL NEEDS.

WHEREAS, public infrastructure serves as the backbone of a well-run municipality, and typically, as infrastructure ages and the needs of a growing city expand, existing infrastructure requires rehabilitation and upgrades; and

WHEREAS, the failure to reinvest in utility infrastructure has resulted in neighboring communities having had numerous water main breaks and sewerage spills resulting in one community being fined \$1.8 million by state regulators; and

WHEREAS, recognizing the increasing need to strategically invest in the water and sewer utility, the Public Works Department tasked Hazen and Sawyer with developing a Water and Sewer Master Plan that prioritizes projects over 25 years; and

WHEREAS, at its October 23, 2019 Sustainability and Resiliency Committee ("SRC") meeting, Public Works staff presented to the Committee a progress update on the Water and Sewer Master Plan (the "Master Plan"); and

WHEREAS, the staff stated it has reviewed the Master Plan and was ready for the Finance and Economic Resiliency Committee ("FERC") (formerly the Finance and Citywide Projects Committee) to review and to further discuss a financing plan; and

WHEREAS, the SRC Committee made a motion to refer the Master Plan to the FERC to identify funding sources; and

WHEREAS, the Master Plan reflects the utility's needs as defined by the Water and Sewer Master Plans and internal renewal and replacement plans; and

WHEREAS, the plan accounts for an investment of \$122.3 million, of which approximately \$37.5 million is already funded; and

WHEREAS, an additional \$24 million of unencumbered water and sewer bond funds have been identified – if these funds were appropriated toward the proposed five-year critical needs capital plan, there would remain a funding gap of approximately \$61 million; and

WHEREAS, when planning the sequencing of projects, staff often takes into account work within the projects' proximity and, when beneficial, projects are grouped into larger neighborhood jobs; and

WHEREAS, approximately \$37 million of the overall \$122.3 million plan have been identified as independent projects -- independent projects generally include aerial pipe crossings, subaqueous pipelines, or other work that lies outside neighborhood boundaries; and

WHEREAS, thus, some projects within the Water and Sewer Critical Needs Five Year Capital Plan may fall within the boundaries of possible neighborhood jobs; and

WHEREAS, however, due to the criticality of these projects, the Administration may proceed with their design and/or construction prior to the start of a neighborhood job; and

WHEREAS, it is important to note that this plan only includes the critical needs defined in the Master Plan and does not encompass general water and sewer work, which may occur as part of the City's neighborhood jobs; and

WHEREAS, the cost and scope of water and sewer work within neighborhood jobs will be quantified upon completion of the Jacobs Engineering Neighborhood Priority List; and

WHEREAS, in order to facilitate further discussion, the Water and Sewer Five Year Priority Lists were presented to the FERC at its February 28, 2020 meeting, and within the lists, a column identified which projects are independent from larger neighborhood jobs; and

WHEREAS, the estimates presented were for planning and budgeting purposes; the actual costs will be determined when the projects are fully designed and bid; and

WHEREAS, FERC made a motion to proceed to the City Commission to seek acceptance of the five-year critical needs capital plan for the City's water and wastewater system, and approval of the \$24 million available from bond proceeds subject to a future appropriation; and

WHEREAS, additionally, FERC recommended commencing a rate study of the water and wastewater utility to determine financial capacity for the water and wastewater

work associated with the Jacobs Engineering neighborhood prioritization and the remaining \$61 million dollars of critical needs.


NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COMMISSION OF THE CITY OF MIAMI BEACH, FLORIDA, that the Mayor and City Commission hereby accept the recommendation of the Finance and Economic Resiliency Committee at its February 28, 2020 meeting, to accept the five-year critical needs capital plan for the City's water and wastewater system, to approve the use of the \$24 million available from bond proceeds, and to commence a rate study of the water and wastewater utility to determine financial capacity for the water and wastewater work associated with the Jacobs Engineering Neighborhood Prioritization and the remaining \$61 million dollars of critical needs.

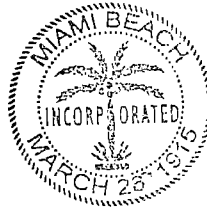
PASSED and ADOPTED this 19 day of March, 2020.



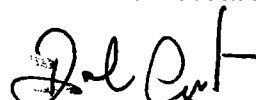
DAN GELBER, MAYOR

ATTEST:

 3/19/2020
RAFAEL E. GRANADO, CITY CLERK



APPROVED AS TO
FORM & LANGUAGE
& FOR EXECUTION


City Attorney

3-12-20
Date

MIAMI BEACH

COMMISSION MEMORANDUM

TO: Honorable Mayor and Members of the City Commission
FROM: Jimmy L. Morales, City Manager
DATE: March 18, 2020

SUBJECT: A RESOLUTION OF THE MAYOR AND CITY COMMISSION OF THE CITY OF MIAMI BEACH, FLORIDA, ACCEPTING THE RECOMMENDATION OF THE FINANCE AND ECONOMIC RESILIENCY COMMITTEE AT ITS FEBRUARY 28, 2020 MEETING, TO ACCEPT THE FIVE-YEAR CRITICAL NEEDS CAPITAL PLAN FOR THE CITY'S WATER AND WASTEWATER SYSTEM, APPROVE THE USE OF THE \$24 MILLION AVAILABLE FROM BOND PROCEEDS; AND TO COMMENCE A RATE STUDY OF THE WATER AND WASTEWATER UTILITY TO DETERMINE FINANCIAL CAPACITY FOR THE WATER AND WASTEWATER WORK ASSOCIATED WITH THE JACOBS ENGINEERING NEIGHBORHOOD PRIORITIZATION AND THE REMAINING \$61 MILLION DOLLARS OF CRITICAL NEEDS.

RECOMMENDATION

The Administration recommends acceptance of the five-year critical needs capital plan for the City's water and wastewater system, and approval of the \$24 Million available from bond proceeds, subject to a future appropriation. Additionally, the Administration recommends commencing a rate study of the water and wastewater utility to determine financial capacity for the water and wastewater work associated with the Jacobs Engineering neighborhood prioritization and the remaining \$61 Million dollars of critical needs.

BACKGROUND/HISTORY

Public infrastructure serves as the backbone of a well-run municipality. Typically, as infrastructure ages and the needs of a growing city expand, existing infrastructure requires rehabilitation and upgrades. Such is the case with the City's water and sewer utility.

Recognizing the increasing need to strategically invest in the water and sewer utility, the Public Works Department tasked Hazen and Sawyer with developing a Water and Sewer Master Plan that prioritizes projects over 25 years.

At its October 23, 2019 Sustainability and Resiliency Committee (SRC) meeting, Public Works staff provided the members of the Committee a progress update on the Water and Sewer Master Plan. The Administration stated it has reviewed the plan and was ready for the Finance and Economic Resiliency Committee (FERC) (formerly the Finance and Citywide Projects

Committee) for review and to further discuss a financing plan.

The SRC Committee made a motion to refer the Water and Sewer System Master Plan to the FERC to identify funding sources.

ANALYSIS

The proposed five year critical needs capital plan for the City's water and wastewater system is summarized below:

Capital Project PROJECT TITLE	FY20 Est. Cost	FY21 Est. Cost	FY22 Est. Cost	FY23 Est. Cost	FY24 Est. Cost	Total
Water & Wastewater Mains and Rehab	\$ 16,093,000	\$ 10,277,855	\$ 14,214,469	\$ 15,441,872	\$ 15,268,653	\$ 71,295,848
Water Pump Station Improvements		\$ 5,592,900	\$ 4,710,396			\$ 10,303,296
Wastewater Stations Rehab.		\$ 11,103,400	\$ 5,209,019			\$ 16,312,419
Valve Assessment & Replacement Program	\$ 900,000	\$ 927,000	\$ 954,810			\$ 2,781,810
Sewer Pump Station Odor Control	\$ 850,600					\$ 850,600
SCADA & PLC (W&S only)	\$ 1,625,250					\$ 1,625,250
Wastewater Manhole Rehab.	\$ 1,500,000	\$ 1,545,000	\$ 1,591,350	\$ 1,639,091	\$ 1,688,263	\$ 7,963,704
Water Meter Replacement	\$ 11,104,893					\$ 11,104,893
						TOTAL \$ 122,237,819

This plan reflects the utility's needs as defined by the Water and Sewer Master Plans and internal renewal and replacement plans. As seen above, the plan accounts for an investment of \$122.3 Million, of which approximately \$37.5 Million is funded. An additional \$24 Million of unencumbered water and sewer bond funds have been identified. If these funds were appropriated toward the proposed five year critical needs capital plan, there would remain a funding gap of approximately \$61 Million.

When planning the sequencing of projects, staff often takes into account work within the projects' proximity and, when beneficial, projects are grouped into larger neighborhood jobs. Approximately \$37 Million of the overall \$122.3 Million plan have been identified as independent projects. Independent projects generally include aerial pipe crossings, subaqueous pipelines, or other work that lies outside neighborhood boundaries. Thus, some projects within the Water and Sewer Critical Needs Five Year Capital Plan may fall within the boundaries of possible neighborhood jobs. However, due to the criticality of these projects, the Administration may proceed with their design and/or construction prior to the start of a neighborhood job.

It is important to note that this plan only includes the critical needs defined in the Water and Sewer Master Plans and does not encompass general water and sewer work, which may occur as part of the City's neighborhood jobs. The cost and scope of water and sewer work within neighborhood jobs will be quantified upon completion of the Jacobs Engineering Neighborhood Priority List.

In order to facilitate further discussion, the Water and Sewer Five Year Priority Lists are attached herein. Within the lists, a column identifies which projects are independent from larger neighborhood jobs.

The estimates presented herein are for planning and budgeting purposes; the actual costs will be determined when the projects are fully designed and bid.

Regionally there is a growing need to reinvest in utility infrastructure. The failure to reinvest in utility infrastructure has resulted in neighboring communities having had numerous water main breaks and sewerage spills resulting in one community being fined \$1.8 million by state regulators. These projects are needed to reduce the risk of similar events happening in the City of Miami Beach.

At its February 28, 2020 meeting, the Finance and Economic Resiliency Committee made a motion to proceed to the full Commission to seek acceptance of the five-year critical needs capital plan for the City's water and wastewater system, and approval of the \$24 Million available from bond proceeds subject to a future appropriation. Additionally, the Committee recommended commencing a rate study of the water and wastewater utility to determine financial capacity for the water and wastewater work associated with the Jacobs Engineering neighborhood prioritization and the remaining \$61 Million dollars of critical needs.

CONCLUSION

The Administration recommends accepting the recommendation and adoption of the Resolution.

Applicable Area

Citywide

Is this a "Residents Right to Know" item, pursuant to City Code Section 2-14?

Yes

Does this item utilize G.O. Bond Funds?

No

Legislative Tracking

Public Works

ATTACHMENTS:

Description

- Water and Sewer System priority lists

Water System Critical Needs Priority List

Project Name	Independent Project	Location	Begin Date	Total
W-2 Booster Station Piping Rehabilitation	✓	75th Street and Dickens Ave	2020	\$ 1,200,000.00
Replacement of WM aerial crossings Venetian Isles	✓	Venetian Isles	2020	\$ 4,420,000.00
Rehabilitation of WM aerial crossings on MacArthur	✓	MacArthur Bridge	2020	\$ 2,271,478.00
Water Main PoF/CoF Priority 1		30-inch FM Alton Rd and 41st St., others TBD	2020	\$ 25,127,797.70
Fire Flow Project 1		10th Street between Lenox Ave and Washington Ave.	2020	\$ 520,000.00
Fire Flow Project 3		Meridian Ave and 13th Street	2020	\$ 250,000.00
Fire Flow Project 5		Locations vary	2020	\$ 150,000.00
Meter Replacement	✓	City Wide	2020	\$ 11,104,893.40
Valve Assessment and Replacement Program		City Wide	2020	\$ 1,081,815.00
Water SCADA	✓	City Wide	2020	\$ 406,312.50
Fire Flow Project 7		Locations vary.	2021	\$ 72,100.00
Fire Flow Project 13		Michigan and 7th Ave	2021	\$ 484,100.00
Fire Flow Project 16		Alton Rd. and Michigan Ave	2021	\$ 638,600.00
Fire Flow Project 17	✓	Terminal Island	2021	\$ 175,100.00
Construction of New Booster Station		North Beach	2021	\$ 5,592,900.00
Aerial Crossing Water Main Replacement	✓	41st Street between Meridian Ave and Chase Ave	2021	\$ 72,100.00
Aerial Crossing Water Main Replacement	✓	41st Street between Pine Tree Dr and Indian Creek	2021	\$ 206,000.00
Aerial Crossing Water Main Replacement	✓	71st Street and Bonita Dr.	2021	\$ 185,400.00
Water Main on MacArthur Causeway	✓	MacArthur Causeway	2022	\$ 4,105,683.00
Belle Isle Booster Station Rehabilitation	✓	Belle Isle	2022	\$ 4,710,396.00
Fire Flow Project 2		West Ave and Flamingo	2022	\$ 456,187.00
Fire Flow Project 4		Euclid and 14th Pl	2022	\$ 169,744.00
Fire Flow Project 15		Euclid and 14th Street	2022	\$ 307,661.00
Fire Flow Project 6		Collins Park	2023	\$ 98,345.43
Fire Flow Project 8		Meridian and 15th Street	2023	\$ 131,127.24
Fire Flow Project 10		20th Street and Collins Ave	2023	\$ 87,418.16
Fire Flow Project 11		18th Street and Collins Ave	2023	\$ 109,272.70
Fire Flow Project 12		Collins and 17th Street	2024	\$ 87,418.16
Fire Flow Project 9		N. Bay Rd between 41st and 43rd St	2024	\$ 821,621.43
Fire Flow Project 14		North Beach, Varies	2024	\$ 855,386.70
Total Water				\$ 65,898,857.41

Sewer System Critical Needs Priority List

Project Name	Independent Project	Location	Begin Date	Total
Gravity Main Replacement - Priority 1		Basin 18 (La Gorce Island), others TBD	2020	\$ 4,916,259.76
Gravity Mains I/I Reduction - Priority 1 (a)		04 (Hibiscus), 05 (Palm), 02 (Star), others TBD	2020	\$ 2,256,357.00
Venetian Way aerial crossing replacement in kind	✓	Venetian Causeway	2020	\$ 770,000.00
Valve assessment and replacement		City Wide	2020	\$ 1,699,995.00
Pump Station No. 2 force main replacement	✓	Star Island to 10th Street and West Ave.	2020	\$ 2,550,000.00
Force Mains PoF/CoF Priority 1		Terminal to Star Island, Normandy Isles, other TBD	2020	\$ 9,813,027.17
Pump Station No. 18 force main replacement		La Gorce Island	2020	\$ 550,000.00
Odor Control System	✓	Varies	2020	\$ 850,600.00
Sewer SCADA	✓	City Wide	2020	\$ 1,218,937.50
Manhole inspection and rehabilitation		City Wide	2020	\$ 7,963,703.72
Pump Station 6, 7 and 8 rerouting		Belle Isle	2021	\$ 1,194,800.00
Aerial crossing Pine Tree Drive 51st Street to 47th St.	✓	Pine Tree Drive	2021	\$ 700,400.00
Pump Station No. 28 Rehabilitation		28th Street and Pine Tree	2021	\$ 11,103,400.00
Pump Station No. 1 Rehabilitation		11th Street	2022	\$ 3,140,264.00
Pump Station No. 30, well lining, and electrical upgrades	✓	Terminal Island	2022	\$ 2,068,755.00
Pump Station No. 4 force main replacement		Between Palm and Hibiscus Island	2022	\$ 477,405.00
Pump Stations No. 5 force main replacement		Palm Island	2022	\$ 413,751.00
Pump Station No. 14 force main replacement		Sunset Island 3	2022	\$ 901,765.00
Pump Station No. 23 force main replacement		75th Street and Dickens Ave	2022	\$ 53,045.00
Pump Station No. 27 force main replacement		Collins Ave and 52nd Street	2022	\$ 53,045.00
Gravity Mains I/I Reduction - Priority 1 (b)		Basin 23, other TBD	2023	\$ 3,643,452.32
Total Sewer				\$ 56,338,962.47